M E M O R A N D U M

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To: Rick Clegg—IDEQ

cc: Bob Geddes, Jeff Waldbeser, & Mike Vice—P_4 Production, LLC; Chris Morris—IDL; Jeff Jones—USFS; Dean Fox—USBLM; Susan Burch & Sandi Arena—USFWS; and Dave Tomten—USEPA.

From: Mark Rettmann, MWH
Bill Wright, MWH

Subject: Phase I Site Investigation Summary Report

Date: April 1, 2005

Reference: P_4 Production Southeast Idaho Mine-Specific Selenium Program

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Introduction

The purpose of this memorandum and attachments, comprising the Phase I Site Investigation Summary Report, is to provide and document the results of the Phase I Site Investigation (SI) that was conducted in 2004 at P_4 Production's Enoch Valley, Henry, and Ballard mines. The Phase I SI Summary Report consist of the following:

- This cover memorandum for the Phase I SI Summary Report
- Attachment A—Figure of Sampling Locations
- Attachment B—Data Validation Summaries by Event-Media
- Attachment C—Validated Data

Sampling Summary

Phase I SI sampling activities were conducted according to the approved project/mine-specific comprehensive site investigation work plans (PjtWPs), and project field sampling plans (PjtFSPs) for Ballard, Enoch Valley, and Henry mines (MWH, March 2004), in addition to the comprehensive Sampling and Analysis Plan (SAP) for Ballard, Enoch Valley, and Henry mines (MWH, April 2004) and according to the activity-specific sampling memorandums listed below.

- Benthic Macroinvertebrate Sampling Memo—June 24, 2004
- Seasonal Vegetation Sampling Memo—June 28, 2004
- Chromium Speciation Sampling Memo—July 6, 2004
- Ballard Mine Agronomic Reconnaissance Memo—July 8, 2004
- Mass Wasting Dump Reconnaissance Memo—July 2004

Sample Results

A figure of sampling locations is presented as Attachment A.

All Phase I SI data were validated according to the SAP, specifically, *SOP-NW-18.1, Data Validation*, found in Appendix B of the Quality Assurance Plan (QAP), and in accordance with *USEPA's Functional Guidelines for Inorganic Data Review* (EPA 540/R-94-012). The data were validated by event and media, where event is the temporal sampling event (i.e., May June, July, September, or October) and by media or by sampling activity media (i.e., mass-wasting soil, riparian soil). The data validation summaries by event-media are included as Attachment B. A list of the data validation summaries included in Attachment B is provided below.

- May04 Forage Fish & Salmonid Fish
- May04 Groundwater
- May04 Sediment
- May04 Surface Water
- Jun04 Benthic Macroinvertebrates
- Jul04 Agronomic Soil
- Jul04 Chromium Speciation in Soil and Sediment
- Jul04 Mass-Wasting Soil
- Jul04 Mass-Wasting Vegetation
- Sep04 Groundwater
- Sep04 Riparian Soil
- Sep04 Riparian Vegetation
- Oct04 Groundwater
- 2004 Monthly Vegetation

All of the Phase I SI data (i.e., 2004 data) are presented in event-media tables and are included in Attachment C. The list of tables included in Attachment C is the same list as Attachment B detailed above, except there are two tables for Jun04 Benthic Macroinvertebrates, one for the analytical data and one for the taxonomic data.

The Interim Surface Water and Sediment Investigation data (May 2002 through July 2003) and corresponding data validation summaries were provided in a draft data transmittal on September 29, 2003. The final data transmittal will occur in conjunction with this Phase I Site Investigation Summary Report.

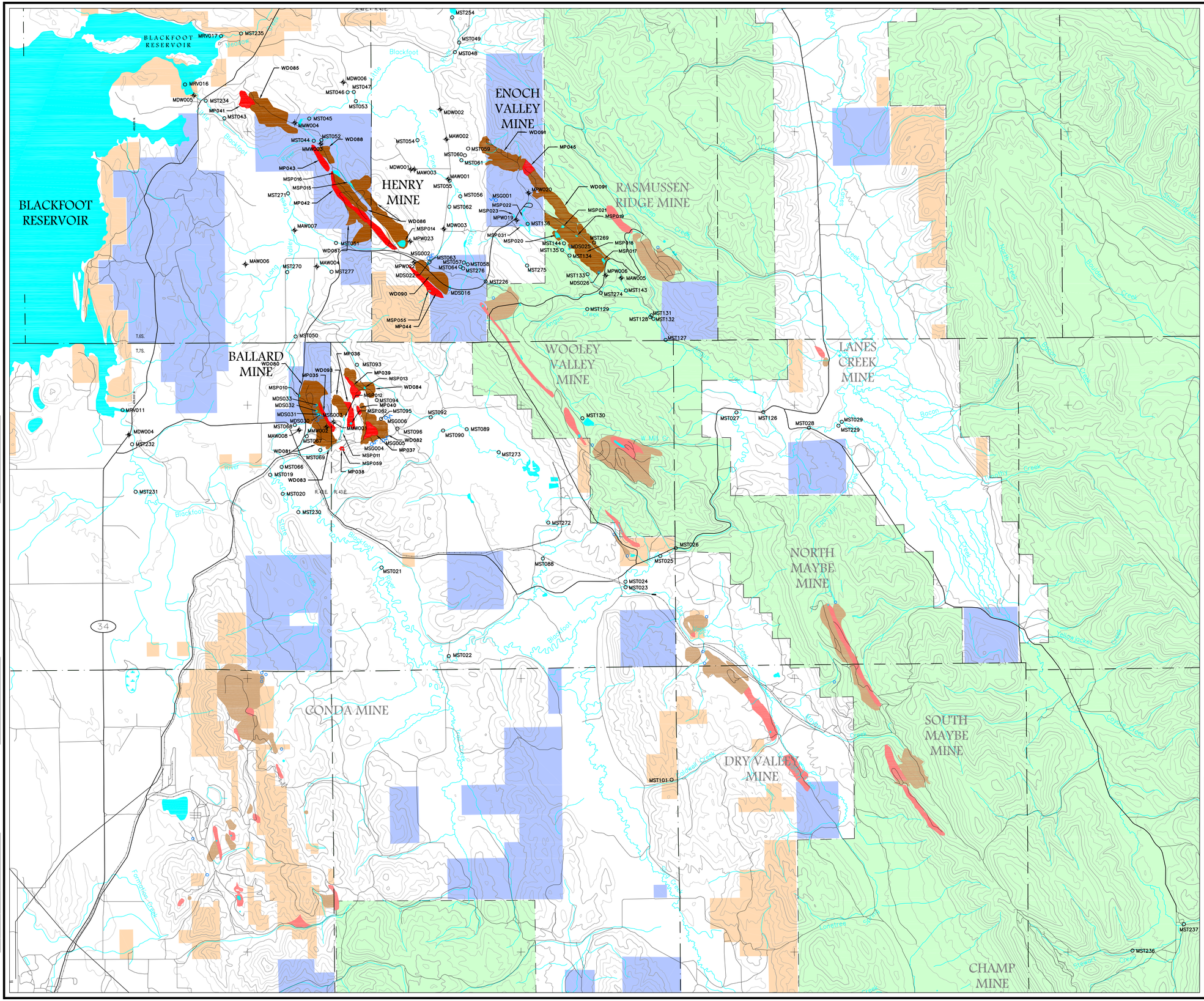
Data Evaluation

All P_4 Production relevant data from the Interim Surface Water and Sediment Investigation, the phased Site Investigations, and historical investigations will be evaluated and reported in either the mine-specific comprehensive SI Reports or the mine-specific Engineering Evaluations/Cost Analyses (EE/CAs), and specifically in the risk assessments.

Conclusions

As a result of the data validation process, all Phase I SI data from 2004 are acceptable.

Attachment A
Figure of Sampling Locations
Phase I Site Investigation



LEGEND

- CONTOURS
- CREEKS/RIVERS
- LAKES/PONDS
- MARSH
- HIGHWAYS
- ROADS
- RAILROAD
- STATE LINE
- COUNTY LINE
- TOWNSHIP AND RANGE
- NATIONAL FOREST
- BUREAU OF LAND MANAGEMENT
- STATE OF IDAHO
- MMP001 — MINE PIT LOCATION
- MWD001 — WASTE ROCK DUMP LOCATION
- MDS001 — WASTE ROCK DUMP SEEP
- MSG277 — SPRING STATION
- MST273 — STREAM STATION
- MMAW001 — AGRICULTURAL WELL
- MMPW001 — PRODUCTION WELL
- MDW001 — DOMESTIC WELL
- MMW001 — MONITORING WELL

MAP KEY

N

SCALE
0 4000 8000
Feet

REV. No.	REVISIONS	DATE	DESIGN BY	DRAWN BY	REVIEWED AND SIGNED BY
1	Issue for Review	3/31/05	P. Stenhouse	C. Taylor	P. Stenhouse

P4 PRODUCTS, LLC

PROJECT:
COMPREHENSIVE SITE INVESTIGATION

DRAWING TITLE:
SOUTHEAST IDAHO MINE SPECIFIC SELENIUM PROGRAM

MWH

Sheet 1 Of 1 Sheets

SCALE: As Shown

FIGURE No.

PROJECT NUMBER: 1010076.011802
AutoCAD FILE: C:MONSANTO-AREA 1-05.dwg
PLOTTED BY: Cabryn.N Taylor Apr. 01, 2005 - 9:57am

P_4 PRODUCTION

FISH TISSUE QUALITY INVESTIGATION—MAY 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of May 2004 fish tissue (whole-body and fillet) completed as part of the Site Investigation (Task 5—Aquatic Ecological Investigation, Subtask 5b—Fish tissue quality investigation). This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA fish tissue samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 132 fish samples were collected and submitted to ACZ for analyses. Fourteen of the 132 samples were selected and labeled as a "QA/QC sample." All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M6020 ICP-MS (Cd, Ni, V, and Zn)
- M7742 Modified AA-Hydride (Se)
- CLPSOW390, F, D (Percent Solids)

The UI QC laboratory analyzed the samples for the following:

- 3050 ICP-MS (As, Ba, Cd, Cr, Co, Cu, Pb, Mg, Mb, Ni, Se, V, and Zn)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for Subtask 5b—Fish tissue quality investigation (May 2004 fish tissue) were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ calibrations and UI calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications. All ACZ and UI spike recoveries were acceptable. ACZ and UI did not perform laboratory duplicates on fish tissue samples.

ACZ ICP interference check samples were acceptable. Interference check samples were not analyzed for any analyte by UI.

All laboratory control samples (LCS) and LCS duplicates analyzed by ACZ were acceptable. UI results for the LCS were acceptable for all analytes except nickel. UI nickel results were estimated as EDL-UJ or J as appropriate.

All applicable ACZ serial dilutions were acceptable. UI did not perform any serial dilutions.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). All ACZ and UI blank results were acceptable.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and UI as required. Analytical data were discoverable in raw data packets from ACZ and UI. UI performed QA/QC analyses on all analytes analyzed by ACZ. UI analyzed all samples within specified holding times. ACZ analyzed metals within six months of collection. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids L45853, L45858, L45859, L45917, L45918, L45918, L45919, L45920, and L45930. UI Project ID ejulo405.
SAMPLES/MATRIX/ANALYSES:	
• Task 5—Aquatic Ecological Investigation, Subtask 5b—Fish Tissue Quality Investigation	
• May 2004	
• Matrix: Fish	
• Method: ACZ: M6020 (ICP-MS) by 3050 digest, M7742 Modified AA-Hydride (Se only), and CLPSOW390-PART F-D. • UI: M6020 (ICP-MS) by 3050 digest.	
• Analyses: ACZ: Cd, Ni, V, Zn (M6020), Se (M7742), Percent Solids (CLPSOW390). UI: Cd, Ni, Se, V, Zn (M6020).	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	O, N/A	N/A			
6. LCS	O	O			
7. Duplicate	O	O			
8. Spike Recovery	O, N/A	O, N/A			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	O, N/A	N/A			
11. Field Duplicates	N/A	N/A			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data validation assessments for P_4 Production's May 2004 fish tissue data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ data were acceptable. All UI data were acceptable with some qualifications.

Verified and Validated by: _Mark Rettmann_____ Date: _January 21, 2005__
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	_X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
_X_ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
_X_ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

	Acceptable Yes	No
2. Holding times (check all that apply)	_X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- Above holding times are for water matrices. There are no holding times established for fish tissue matrices. However, all samples were analyzed within six months of collection.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
3. Calibrations (check all that apply)	_X_	___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable.

4. Blanks (check all that apply)	_X_	___

___Detects reported ICB/CCB, list:

___Detects in preparation blanks, list:

___Detects in field blanks, list:

Qualify as undetected (U) all sample concentrations $\leq$5 X any blank concentrations.

Comments/Qualified Results:

- ACZ - All blanks were reported below the detection limit and were acceptable.
- UI - All blanks were reported below the detection limit and were acceptable.

Acceptable
Yes No

5. Interference Checks (check all that apply) __X_ ___

_X_ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – All ICS recoveries were acceptable.
- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply) __X_ ___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
_X_LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
___LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
_X_LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - all LCS and LCS duplicates were acceptable.
- UI - two LCS's for Ni were >120%R, UI results >EDL were qualified as estimated (J), and results <EDL as estimated at the sample specific EDL (i.e., 0.38UJ). Note, no sample results were reported <EDL. All other LCS/LCSD for all other analytes were acceptable. No other qualification necessary.

7. Duplicate (check all that apply) __X_ ___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
_X_Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
_X_Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - duplicate results were acceptable.
- UI - two laboratory duplicates for Ni were not acceptable and sample results >EDL were qualified as estimated (J). All other duplicates for all other analytes were acceptable.

Acceptable
Yes No

8. Spike Recovery (check all that apply) __X_ ___

_X_Spike %R with 75-125%
___Spike %R 30-74%, >125%, results >IDL estimated (J)
___Spike %R 30-74% results <IDL estimated (UJ)
___Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
___Spike % R >125%, results <IDL acceptable
___Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:
- ACZ - all spike recoveries were acceptable.
- UI - not applicable.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:
- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) __X_ ___

_X_Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:
- ACZ – all applicable serial dilution %D's were acceptable.
- UI – not analyzed.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
11. Field Duplicates (check all that apply)	NA	

_x_Field duplicate RPD ≤20% waters (≤35% for soils)
_x_Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ - no field duplicates present.
- UI - no field duplicates present.

12. Result Verification (check all that apply)	__X_	___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment	__X_	___

- ACZ and UI data were acceptable. No ACZ data were qualified besides <MDL results. UI data were qualified (flagged) as estimated (EDL-UJ, or J) for various reasons. Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.
- Sample results <MDL (ACZ) or <EDL (UI) were qualified as undetected at the sample specific MDL/EDL (MDL/EDL-U).

P_4 PRODUCTION

GROUNDWATER QUALITY INVESTIGATION—MAY 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of May 2004 groundwater data obtained as part of the Site Investigation (Task 3—Geology and Groundwater Investigation, Subtask 3a—Phase I Investigation, Activity 3a-5—sampling existing mine and domestic wells, springs and seeps). This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA groundwater samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 23 groundwater samples were collected and submitted to ACZ for analyses. Two of the 23 samples were selected and labeled as a "QA/QC sample." All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M200.7 ICP (Ca, K, Mg, Na), dissolved
- M200.8 ICP-MS (Cd, Cr, Ni, V, and Zn), dissolved and/or total as requested
- SM3114B AA-Hydride (Se), dissolved and/or total as requested

- M300.0 Ion Chromotography (chloride and sulfate)
- SM2320B - titration (total alkalinity)

The UI QC laboratory analyzed the samples for the following:

- M200.7 ICP (Ca, K, Mg, Na), dissolved
- M200.8 ICP-MS (Cd, Cr, Ni, Se, V, and Zn), dissolved and/or total as requested
- M300.0 Ion Chromotography (chloride and sulfate)
- M310.1 (alkalinity)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for Task 3, Subtask 3a, Activity 3a-5—sampling existing mine and domestic wells, springs and seeps (May 2004 groundwater) were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ calibrations were acceptable. All UI calibrations were acceptable with some total and dissolved selenium data qualified due to minor problems. Calibrations were run as initial calibration verifications and continuing calibration verifications.

All ACZ spike recoveries were acceptable. UI did not perform spike recoveries on the samples.

ACZ ran acceptable laboratory duplicates on the samples. Duplicate samples were validated from field and laboratory duplicates. All UI duplicate results were acceptable except for zinc. Zinc sample results >EDL were qualified as estimated (J). All other duplicates for all other analytes were acceptable.

ACZ Interference check samples were acceptable (Ca, Fe, Mg, K, and Na). UI did not analyze Interference check samples.

Laboratory control samples (LCS) were analyzed by ACZ for alkalinity results. All results from ACZ were acceptable. UI did not analyze LCS.

Neither laboratory performed serial dilutions on any of the analytes.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). All ACZ blank results were acceptable except for total nickel (sample results <0.0025 were qualified as undetected, 0.0025U), total sodium (sample results <3.0 were qualified as undetected, 3.0U), and total zinc (sample results <0.16 were qualified as undetected 0.06U). UI blank results reported no detections in any blank samples. The sample results associated with the detected blanks that were greater than the method detection limit and less than five times the detected blank were qualified as undetected. All other blank results were below detection limit.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and UI as required. Analytical data were discoverable in raw data packets from ACZ and UI. UI performed QA/QC analyses on all analytes analyzed by ACZ. UI analyzed all samples within specified holding times. ACZ analyzed metals within six months of collection. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids L45921, L45922, and L45923. UI Project ID wmay0436.
SAMPLES/MATRIX/ANALYSES:	
• Task 3—Geology and Groundwater Investigation, Subtask 3a—Phase I Investigation, Activity 3a-5—sampling existing mine and domestic wells, springs and seeps.	
• May 2004	
• Matrix: Groundwater	
• Methods: • ACZ: M200.7 ICP (Ca, K, Mg, Na)-dissolved, M200.8 ICP-MS (Cd, Cr, Ni, V, and Zn)-dissolved and/or total as requested, SM3114B AA-Hydride (Se)-dissolved and/or total as requested, M300.0 Ion Chromotography (chloride and sulfate), SM2320B titration (total alkalinity). • UI: M200.7 ICP (Ca, K, Mg, Na)-dissolved, M200.8 ICP-MS (Cd, Cr, Ni, Se, V, and Zn)-dissolved and/or total as requested, M300.0 Ion Chromotography (chloride and sulfate), M310.1 (alkalinity).	
Analyses: See above analyses under the methods section.	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	O, N/A	N/A			
6. LCS	O	O			
7. Duplicate	O	O			
8. Spike Recovery	O, N/A	O, N/A			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	N/A	N/A			
11. Field Duplicates	O, N/A	N/A			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's May 2004 ground water data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ and UI data were acceptable with some qualifications.

Verified and Validated by: _Mark Rettmann_____ Date: _January 28, 2005_____
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	__X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
_X_ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
_X_ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

2. Holding times (check all that apply)	__X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- Holding times were met.
- No qualification necessary.

Acceptable
Yes No

3. Calibrations (check all that apply) __X_ ___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable or qualified due to minor problems. Dissolved selenium results <EDL were qualified as estimated at the sample specific EDL (i.e., 0.001UJ), and total selenium results >EDL were qualified as estimated (J).

4. Blanks (check all that apply) _X_ ___

___Detects reported ICB/CCB, list:

___Detects in preparation blanks, list:

___Detects in field blanks, list:

Qualify as undetected (U) all sample concentrations ≤5 X any blank concentrations.

Comments/Qualified Results:

- ACZ - All blanks were reported below the detection limit and were acceptable except for total nickel (sample results <0.0025 were qualified as undetected, 0.0025U), total sodium (sample results <3.0 were qualified as undetected, 3.0U), and total zinc (sample results <0.16 were qualified as undetected 0.06U).
- UI - All blanks were reported below the detection limit and were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

Acceptable
Yes No

5. Interference Checks (check all that apply) __X_ ___

_X_ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – All ICS recoveries were acceptable (Ca, Fe, Mg, K, and Na).
- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply) __X_ ___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
___LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
___LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - all LCS and LCS duplicates were acceptable (alkalinity only).
- UI - all LCS %R's were acceptable.

7. Duplicate (check all that apply) __X_ ___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
_X_Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
___Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - duplicate results were acceptable.
- UI - two laboratory duplicates for zinc were not acceptable and sample results >EDL were qualified as estimated (J). All other duplicates for all other analytes were acceptable.

Acceptable
Yes No

8. Spike Recovery (check all that apply) __X_ ___

_X_Spike %R with 75-125%
___Spike %R 30-74%, >125%, results >IDL estimated (J)
___Spike %R 30-74% results <IDL estimated (UJ)
___Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
___Spike % R >125%, results <IDL acceptable
___Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:
- ACZ - all spike recoveries were acceptable.
- UI - not applicable.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:
- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) NA

___Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:
- ACZ – not analyzed.
- UI – not analyzed.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
11. Field Duplicates (check all that apply)	_X_	___

___Field duplicate RPD ≤20% waters (≤35% for soils)
___Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ - three field replicates were taken at each QA/QC station. No qualification requirements for field QC.
- UI - no field duplicates present.

12. Result Verification (check all that apply)	_X_	___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment	_X_	___

- ACZ and UI data were acceptable. No ACZ data were qualified except for total nickel (sample results <0.0025 were qualified as undetected, 0.0025U), total sodium (sample results <3.0 were qualified as undetected, 3.0U), and total zinc (sample results <0.16 were qualified as undetected 0.06U) for blank detections. UI data were qualified due to minor problems with calibrations (dissolved selenium, results <EDL were qualified as estimated at the sample specific EDL [i.e., 0.001UJ], and total selenium results >EDL were qualified as estimated [J]). and duplicates (zinc, sample results >EDL were qualified as estimated [J])
- Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.
- Sample results <MDL (ACZ) or <EDL (UI) were qualified as undetected at the sample specific MDL/EDL (MDL/EDL-U), where appropriate.

P_4 PRODUCTION

SEDIMENT QUALITY INVESTIGATION—MAY 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of May 2004 sediment completed as part of the Site Investigation (Task 1—Surface and Sediment Investigation, Subtask 1b—Surface water and sediment investigation). This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA sediment samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 99 sediment samples were collected and submitted to ACZ for analyses. Eleven of the 99 samples were selected and labeled as a "QA/QC sample." All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M6020 ICP-MS (Cd, Cr, Ni, V, and Zn)
- M7742 Modified AA-Hydride (Se)
- CLPSOW390, F, D (Percent Solids)

The UI QC laboratory analyzed the samples for the following:

- 3050 ICP-MS (Cd, Cr, Ni, Se, V, and Zn)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for Subtask 1b—Surface Water and Sediment Investigation (May 2004 sediment) were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ calibrations and UI calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications.

The majority of ACZ spike recoveries were acceptable. Selenium and cadmium runs reported various qualifications for spike recovery issues. UI performed spike recoveries on the selenium cadmium samples. Results were acceptable.

ACZ ran acceptable laboratory duplicates on the sediment samples. Duplicate samples were validated from laboratory duplicates. UI analyzed duplicate samples from laboratory duplicates. All results were acceptable.

Interference check samples were not analyzed for any analyte by either laboratory.

Laboratory control samples (LCS) were analyzed by ACZ. Selenium results were outside acceptable limits and qualified. UI results for the LCS were acceptable for all analytes.

Neither laboratory performed serial dilutions on any of the analytes.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). ACZ results showed blank detections in Cr, Ni, and V. UI results reported no detections in any blank samples. The sample results associated with the detected blanks that were greater than the method detection limit and less than five times the detected blank were qualified as undetected. All other blank results were below detection limit.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and UI as required. Analytical data were discoverable in raw data packets from ACZ and UI. UI performed QA/QC analyses on all analytes analyzed by ACZ. UI analyzed all samples within specified holding times. ACZ analyzed metals within six months of collection. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids L45801, L45829, L45830, L45832, L45873, L45929, L45954, L45955, L45956, L45959. UI Project ID EJUL04-09.
SAMPLES/MATRIX/ANALYSES:	
• Task 1—Surface Water and Sediment Investigation, Subtask 1b—Surface Water and Sediment Sampling	
• May 2004	
• Matrix: Sediment	
• Method: ACZ: M6020 (ICP-MS) by 3050 digest, M7742 Modified AA-Hydride (Se only), and CLPSOW390-PART F-D. • UI: M6020 (ICP-MS) by 3050 digest.	
• Analyses: ACZ: Cd, Ni, V, Zn (M6020), Se (M7742), Percent Solids (CLPSOW390). UI: Cd, Ni, Se, V, Zn (M6020).	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	N/A	N/A			
6. LCS	O	O			
7. Duplicate	O	O			
8. Spike Recovery	O, N/A	N/A			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	N/A	N/A			
11. Field Duplicates	N/A	N/A			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:
This data validation summary summarizes all individual analyte data assessments for P_4 Production's May 2004 sediment tissue data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ and UI data were acceptable with some qualifications.

Verified and Validated by: _Paul Stenhouse_____ Date: __31 JAN, 2005____
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	__X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
___ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
___ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

2. Holding times (check all that apply)	__X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- Above holding times are for water matrices. There are no holding times established for sediment tissue matrices. However, all samples were analyzed within six months of collection.

Acceptable
Yes No

3. Calibrations (check all that apply) __X_ ___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:
- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable.

4. Blanks (check all that apply) _X_ ___

_x_Detects reported ICB/CCB, list:

_x_Detects in preparation blanks, list:

_x_Detects in field blanks, list:

Qualify as undetected (U) all sample concentrations $\leq$5 X any blank concentrations.

Comments/Qualified Results:

- ACZ – Blank detections reported for Cr, Ni, V, and Zn. Samples associated with these detections were qualified.
- UI - All blanks were reported below the detection limit and were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
5. Interference Checks (check all that apply)	_X_	___

___ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – Not Applicable.
- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply) _X_ ___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
_X_LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
_X_LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
_X_LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - LCS and LCS duplicates from Cd, Cr, Ni, and Se were flagged for results outside of acceptable limits.
- UI - All LCS/LCSD were acceptable.

7. Duplicate (check all that apply) _X_ ___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
___Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
___Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - duplicate results were acceptable.
- UI - duplicate results were acceptable.

Acceptable
Yes No

8. Spike Recovery (check all that apply) __X_ ___

_X_Spike %R with 75-125%
_X_Spike %R 30-74%, >125%, results >IDL estimated (J)
_X_Spike %R 30-74% results <IDL estimated (UJ)
_X_Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
___Spike % R >125%, results <IDL acceptable
_X_Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ - Spike recoveries for Se and Cd were flagged for poor recoveries. All other results were acceptable.
- UI – Spike recoveries for Se and Cd were acceptable.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) __X_ ___

___Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- ACZ – not analyzed.
- UI – not analyzed.

Acceptable
Yes No

11. Field Duplicates (check all that apply) NA

___Field duplicate RPD ≤20% waters (≤35% for soils)
___Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ - no field duplicates present.
- UI - no field duplicates present.

12. Result Verification (check all that apply) __X_ ___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment __X_ ___

- ACZ and UI data were acceptable. ACZ data were qualified besides <MDL results for blanks, LCS, and spike results. UI data were acceptable. Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.
- Sample results <MDL (ACZ) or <EDL (UI) were qualified as undetected at the sample specific MDL/EDL (MDL/EDL-U).

P_4 PRODUCTION

SURFACE WATER INVESTIGATION—MAY 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of May 2004 surface water data completed as part of the Site Investigation (Task 1—Surface Water and Sediment Investigation, Subtask 1b—Surface water and sediment sampling). This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 98 surface water samples were collected and submitted to ACZ for analyses. Eleven of the 98 samples were selected QA/QC stations. Four replicate samples, a source water blank, and an equipment blank were collected at each QA/QC stations with one of the four replicate samples being sent to the UI for analysis. All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M200.7 ICP (Ca, K, Mg, Na), dissolved and/or total as requested
- M200.8 ICP-MS (Cd, Ni, V, and Zn), dissolved and/or total as requested

- SM3114B AA-Hydride (Se), dissolved and/or total as requested
- M300.0 Ion Chromotography (chloride and sulfate)
- SM2320B - titration (total alkalinity)

The UI QC laboratory analyzed the samples for the following:

- M200.7 ICP (Ca, K, Mg, Na), dissolved
- M200.8 ICP-MS (Cd, Ni, Se, V, and Zn), dissolved and/or total as requested
- M300.0 Ion Chromotography (chloride and sulfate)
- M310.1 (alkalinity)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for Task 1—Surface Water and Sediment Investigation, Subtask 1b—Surface water and sediment sampling (May 2004 surface water) were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ calibrations were acceptable. UI calibrations were acceptable with some minor qualifications for dissolved and total selenium (J-estimated). Calibrations were run as initial calibration verifications and continuing calibration verifications.

All ACZ spike recoveries were acceptable. UI did not perform spike recoveries on the samples.

ACZ ran acceptable laboratory duplicates on the surface water samples. Duplicate samples were validated from field and laboratory duplicates. All UI duplicate results were acceptable except for zinc, which was qualified as estimated (J).

Interference check samples were analyzed only by ACZ for calcium, magnesium, potassium, and sodium. Recoveries were acceptable.

All ACZ and UI laboratory control samples (LCS) were acceptable.

Neither laboratory performed serial dilutions on any of the analytes.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). ACZ blank results were acceptable with some minor qualifications. ACZ reported CCB detections for nickel and vanadium and field equipment blank detections for nickel and zinc. UI results reported no detections in any blank samples. The sample results associated with the detected blanks that were greater than the method detection limit and less than five times the detected blank were qualified as undetected at five times the highest blank detection for that particular analyte. All other blank results were below detection limit.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and UI as required. Analytical data were discoverable in raw data packets from ACZ and UI. UI performed QA/QC analyses on all analytes analyzed by ACZ. ACZ and UI analyzed all samples within specified holding times. ACZ analyzed metals within six months of collection. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids L45771, L45772, L45773, L45774, L45818, L45819, L45827, L45863, L45874, L45912, L45926, L45927, L45931, L45950, L45952, L45953, and L45963. UI Project ID wmay0436.
SAMPLES/MATRIX/ANALYSES:	
• Task 1—Surface Water and Sediment Investigation, Subtask 1b—Surface water and sediment sampling	
• May 2004	
• Matrix: Surface Water	
• Methods: • ACZ: M200.7 ICP (Ca, K, Mg, Na)-dissolved, M200.8 ICP-MS (Cd, Ni, V, and Zn)-dissolved and/or total as requested, SM3114B AA-Hydride (Se)-dissolved and/or total as requested, M300.0 Ion Chromotography (chloride and sulfate), SM2320B titration (total alkalinity). • UI: M200.7 ICP (Ca, K, Mg, Na)-dissolved, M200.8 ICP-MS (Cd, Ni, Se, V, and Zn)-dissolved and/or total as requested, M300.0 Ion Chromotography (chloride and sulfate), M310.1 (alkalinity).	
Analyses: See above analyses under the methods section.	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	O, N/A	N/A			
6. LCS	O	O			
7. Duplicate	O	O			
8. Spike Recovery	O, N/A	O, N/A			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	N/A	N/A			
11. Field Duplicates	N/A	N/A			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's May 2004 surface water data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ and UI data were acceptable with some minor qualifications.

Verified and Validated by: _Mark Rettmann_____ Date: _January 31, 2005__
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	__X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
_X_ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
_X_ICP Serial Dilution
_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

2. Holding times (check all that apply)	__X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- Holding times were met for both laboratories.
- No qualification necessary.

Acceptable
Yes No

3. Calibrations (check all that apply) __X_ ___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable or qualified due to minor problems. Dissolved selenium results <EDL were qualified as estimated at the sample specific EDL (i.e., 0.001UJ), and total selenium results >EDL were qualified as estimated (J).

4. Blanks (check all that apply) _X_ ___

___Detects reported ICB/CCB, list:
- Nickel, CCB detects included the following: 0.00021, 0.00025, 0.00028, 0.00023, 0.00028, 0.0004, and 0.00028 mg/L.
- Vanadium, CCB detections included the following: 0.000058, 0.000054, 0.000065, 0.000052, 0.00006, 0.000071, 0.000053, 0.000066, 0.000069, 0.000075, 0.000075, 0.000074, 0.00005, 0.000095, 0.000085, 0.000076, and 0.000081 mg/L.

___Detects in preparation blanks, list:

___Detects in field blanks, list:
- Nickel, field equipment blank detections included the following: 0.0002, 0.0003, 0.0004, 0.0005, 0.0003, 0.0005, 0.001, 0.0004 mg/L.
- Zinc, field equipment blank detections included the following: 0.002, and 0.003 mg/L. The MDL was 0.002 mg/L.

Qualify as undetected (U) all sample concentrations $\leq$5 X any blank concentrations.

Comments/Qualified Results:

- ACZ - All blanks were reported below the detection limit and were acceptable except for dissolved nickel, dissolved vanadium, and dissolved zinc. The exceptions were qualified as undetected at five times the highest blank detection for each analyte (Ni: 0.005U, V: 0.00048U, and Zn: 0.015U).
- UI - All blanks were reported below the detection limit and were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
5. Interference Checks (check all that apply)	_X_	___

_X_ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – All applicable ICS recoveries were acceptable (Ca, K, Mg, Na).
- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply)	_X_	___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
___LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
___LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - all LCS and LCS duplicates were acceptable.
- UI – all LCS were acceptable.

7. Duplicate (check all that apply)	_X_	___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
_X_Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
___Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - duplicate results were acceptable.
- UI - two laboratory duplicates for zinc were not acceptable and sample results >EDL were qualified as estimated (J). All other duplicates for all other analytes were acceptable.

	Acceptable Yes	No
8. Spike Recovery (check all that apply)	_X_	___

_X_Spike %R with 75-125%
___Spike %R 30-74%, >125%, results >IDL estimated (J)
___Spike %R 30-74% results <IDL estimated (UJ)
___Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
___Spike % R >125%, results <IDL acceptable
___Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ - all spike recoveries were acceptable.
- UI - not applicable.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) NA

___Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- ACZ – not analyzed.
- UI – not analyzed.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
11. Field Duplicates (check all that apply)	NA	

_x_Field duplicate RPD ≤20% waters (≤35% for soils)
_x_Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ - no qualification requirements for field QC.
- UI - no field duplicates present.

12. Result Verification (check all that apply) __X_ ___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment __X_ ___

- ACZ and UI data were acceptable. No ACZ data were qualified except for nickel, vanadium and zinc. The exceptions were qualified as undetected at five times the highest blank detection for each analyte (Ni: 0.005U, V: 0.00048U, and Zn: 0.015U). UI data were qualified due to minor problems with calibrations (dissolved selenium, results <EDL were qualified as estimated at the sample specific EDL [i.e., 0.001UJ], and total selenium results >EDL were qualified as estimated [J]) and duplicates (zinc, sample results >EDL were qualified as estimated [J])
- Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.

P_4 PRODUCTION

BENTHIC MACROINVERTEBRATE QUALITY INVESTIGATION—JUNE 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of June 2004 benthic macroinvertebrate tissue analyses completed as part of the Site Investigation. This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA benthic macroinvertebrate tissue samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 163 benthic macroinvertebrate samples were analyzed by ACZ for selenium. Eight samples were selected and labeled as a "QA/QC sample." All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M7742 Modified AA-Hydride (Se)

The UI QC laboratory analyzed the samples for the following:

- M3050/6020 ICP (Se)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for P_4 Production SI Benthic Macroinvertebrate Investigation were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ calibrations and UI calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications.

All ACZ spike recoveries were acceptable.

UI did not perform spike recoveries on the samples.

ACZ ran acceptable laboratory duplicates on the benthic macroinvertebrate tissue samples. Duplicate samples were validated from laboratory duplicates. All results were acceptable.

Interference check samples were not analyzed for any analyte by either laboratory.

Laboratory control samples (LCS) were analyzed by ACZ for selenium results. Seven LCS and LCS-Duplicate results were outside acceptable range. Selenium results were flagged as UJ or J. UI results for the LCS were acceptable according to the criteria.

Neither laboratory performed serial dilutions on any of the analytes.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). ACZ results reported no detections in any blank samples. UI results reported no detections in any blank samples.

Completeness

All samples were collected and analyzed as specified in the P_4 Production SI Benthic Macroinvertebrate Investigation Memo (21 June 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Analytical data were discoverable in raw data packets from ACZ and UI. UI performed QA/QC analyses on all Se analyzed by ACZ. UI

analyzed all samples within specified holding times. ACZ analyzed metals within six months of collection.

Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine.
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids L47345, L47346, L47347, L47348, L47349, L47351, L47352, L47353, L47354, L47355, L47356, L47357, and L47358. UI Case ID: ESEP04-0506.
SAMPLES/MATRIX/ANALYSES:	
• Memo	
• June 2004	
• Matrix: Benthic Macroinvertebrates	
• Method: ACZ: M7742 modified, AA-Hydride. • UI: 3050/6020 ICP.	
Analyses: Selenium	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	N/A	N/A			
6. LCS	O	O			
7. Duplicate	O	O			
8. Spike Recovery	N/A	O, N/A			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	N/A	N/A			
11. Field Duplicates	N/A	N/A			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's June 2004 benthic macroinvertebrate tissue data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All UI data were acceptable. All ACZ data were acceptable.

Verified and Validated by: Paul Stenhouse_____ Date: _28 January, 2005_
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	_X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
___ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
___ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_AA_____

Comments/Qualified Results:

- No qualification necessary.

	Acceptable Yes	No
2. Holding times (check all that apply)	_X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- There are no holding times established for benthic macroinvertebrate tissue analyses. However, all samples were analyzed within six months of collection.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
3. Calibrations (check all that apply)	_X_	___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable.

4. Blanks (check all that apply)	_X_	___

___Detects reported ICB/CCB, list:

___Detects in preparation blanks, list:

___Detects in field blanks, list:

Qualify as undetected (U) all sample concentrations $\leq$5 X any blank concentrations.

Comments/Qualified Results:

- ACZ - All blanks were reported below the detection limit and were acceptable.
- UI - All blanks were reported below the detection limit and were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

Acceptable
Yes No

5. Interference Checks (check all that apply) NA

___ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – Not Applicable.
- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply) __X_ ___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
_X_LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
_X_LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - All results qualified as J (>MDL) or MDL UJ (<MDL). Seven of 22 results outside acceptable range.
- UI – All results acceptable.

7. Duplicate (check all that apply) __X_ ___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
___Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
___Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - Duplicate results were acceptable.
- UI - Duplicate results were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
8. Spike Recovery (check all that apply)	_X_	___

_X_Spike %R with 75-125%
___Spike %R 30-74%, >125%, results >IDL estimated (J)
___Spike %R 30-74% results <IDL estimated (UJ)
___Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
___Spike % R >125%, results <IDL acceptable
___Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ - all spike recoveries were acceptable.
- UI - not applicable.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) NA

___Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.
- UI – not applicable.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
11. Field Duplicates (check all that apply)	NA	

___Field duplicate RPD ≤20% waters (≤35% for soils)
___Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ - no field duplicates present.
- UI - no field duplicates present.

12. Result Verification (check all that apply)	_X_	___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment	_X_	___

- ACZ and UI data were acceptable. ACZ data were qualified (flagged) as estimated (EDL-UJ, or J) for various reasons. No UI data were qualified besides <MDL results. Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.
- Sample results <MDL (ACZ) or <EDL (UI) were qualified as undetected at the sample specific MDL/EDL (MDL/EDL-U).

P_4 PRODUCTION

SOIL (AGRONOMIC) QUALITY INVESTIGATION—JULY 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of July 2004 agronomic soil data completed as part of the Site Investigation (Task 4—Soil Investigation, Subtask 4d—Agronomic testing of unreclaimed, poorly reclaimed, and well reclaimed land). This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA agronomic soil samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994). However, ACZ did not create a QA agronomic soil split for UI as requested. The impact on the data is considered minimal due to very few samples being analyzed under this task/subtask. In addition, all other ACZ analyses and methods have been acceptable under the other tasks/subtasks.

A total of 9 agronomic soil samples were collected and submitted to ACZ for analyses. One of the 9 samples were selected and labeled as a "QA/QC sample." All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M6010B ICP with AB-DTPA digestion (extractable: Cd, Cr, Cu, Fe, Mn, Mo, Ni, V, and Zn)
- M6010B ICP with saturated past digestion (soluble: Ca, Mg, K, Na)
- SM3114B AA-Hydride with AB-DTPA digestion (extractable: Se)
- USDA No. 60 (19) (cation exchange capacity)
- ASA No. 9 29-2.2.4 Combustion/IR (total organic carbon)
- CLPSOW390, F, D (Percent Solids)
- M120.1-meter (conductivity at 25C)
- USDA No. 60 (21A) (pH)
- ASTM D 422 Hydrometer (texture)
- M353.2-Automadted Cadmium Reduction with KCl digestion (Nitrate/Nitrite as N and Nitrite as N)
- M350.1-Automated Phenate with KCl digestion (Nitrogen, Ammonia)
- M365.1-Automated Asorbic Acid with AB-DTPA digestion (Phosphorus)
- M375.3-Gravimetric, soluble (Sulfate)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for this subtask (Subtask 4d—Agronomic testing of unreclaimed, poorly reclaimed, and well reclaimed land) were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to

signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ calibrations calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications.

All ACZ spike recoveries were acceptable.

ACZ laboratory duplicates were acceptable for all analytes except extractable phosphorus, results >MDL were qualified as estimated (J).

ACZ interference check samples were acceptable.

Laboratory control samples (LCS) were not analyzed by ACZ.

All applicable serial dilutions performed by ACZ were acceptable.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). ACZ results showed blank detections for iron, zinc, and nitrate/nitrite as N. The sample results associated with the detected blanks that were greater than the method detection limit and less than five times the detected blank were qualified as undetected at five times the highest blank detection for the specific analyte. All other blank results were below detection limit.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ data were complete. ACZ provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ, but no QA split was prepared for UI. Analytical data were discoverable in raw data packets. ACZ analyzed metals within established holding times. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ analyzing the samples according to the required methods. ACZ used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: NA	SDG: ACZ Project Ids L46808. UI Project ID to be determined.
SAMPLES/MATRIX/ANALYSES:	
• Task 4—Soil Investigation, Subtask 4d—Agronomic testing of unreclaimed, poorly reclaimed, and well reclaimed land	
• July 2004	
• Matrix: Agronomic Soil	
• Methods: See page 2 of this data validation summary.	
• Analyses: See page 2 of this data validation summary.	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	O	N/A			
6. LCS	N/A	N/A			
7. Duplicate	O	O			
8. Spike Recovery	O	O			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	O	N/A			
11. Field Duplicates	N/A	N/A			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's July 2004 agronomic soil data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ data were acceptable.

Verified and Validated by: _Mark Rettmann_____ Date: _January 31, 2005___
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	_X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
_X_ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
_X_ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

	Acceptable Yes	No
2. Holding times (check all that apply)	_X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- ACZ holding times were met.
- No qualification necessary.

	Acceptable Yes	No
3. Calibrations (check all that apply)	_X_	___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.

4. Blanks (check all that apply)	_X_	___

___Detects reported ICB/CCB, list:

_x_Detects in preparation blanks, list:
- Iron, 1.06 mg/L
- Nitrate/Nitrite as N, 0.36 mg/L

_x_Detects in field blanks, list:
- Zinc, 0.02 mg/L

Qualify as undetected (U) all sample concentrations ≤5 X any blank concentrations.

Comments/Qualified Results:

- ACZ - Most blanks were reported below the detection limit and were acceptable with a few qualified exceptions. Sample results <5.3 for iron were qualified as undetected (5.3U), sample results <0.10 for zinc were qualified as undetected (0.10U), and sample results <1.8 for nitrate/nitrite as N were qualified as undetected (1.8U).

INORGANIC DATA ASSESSMENT SUMMARY

Acceptable
Yes No

5. Interference Checks (check all that apply) __X_ ___

_X_ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – All ICS recoveries were acceptable.

6. Laboratory Control Samples (check all that apply) NA

___LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
___LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
___LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - not applicable

7. Duplicate (check all that apply) __X_ ___

_X_Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL
_X_Duplicate Range is within ±CRDL (±2xCRDL for soils) for results ≤ 5X CRDL
_X_Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - duplicate results were acceptable except for extractable phosphorus. Positive phosphorus results were qualified as estimated (J).

Acceptable
Yes No

8. Spike Recovery (check all that apply) __X_ ___

_X_Spike %R with 75-125%
___Spike %R 30-74%, >125%, results >IDL estimated (J)
___Spike %R 30-74% results <IDL estimated (UJ)
___Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
___Spike % R >125%, results <IDL acceptable
___Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ - all spike recoveries were acceptable.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.

10. Serial Dilution (check all that apply) __X_ ___

_X_Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- ACZ – all applicable serial dilution %D's were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

Acceptable
Yes No

11. Field Duplicates (check all that apply) NA

___Field duplicate RPD ≤20% waters (≤35% for soils)
___Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ - no qualification for field QC

12. Result Verification (check all that apply) __X_ ___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment __X_ ___

- ACZ data were acceptable with some minor qualifications. Sample results <5.3 for iron were qualified as undetected (5.3U), sample results <0.10 for zinc were qualified as undetected (0.10U), and sample results <1.8 for nitrate/nitrite as N were qualified as undetected (1.8U) based on unacceptable blank results. Also, phosphorus results >MDL were qualified as estimated (J) due to unacceptable duplicates.
- Sample results <MDL (ACZ) or <EDL (UI) were qualified as undetected at the sample specific MDL/EDL (MDL/EDL-U).

P_4 PRODUCTION

SOIL AND SEDIMENT (CHROMIUM SPECIATION)

QUALITY INVESTIGATION—JULY 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of July 2004 chromium speciation data completed as part of the Site Investigation (Task 4—Soil Investigation). This effort was completed on behalf of P_4 Production, LLC. The University of Idaho (UI) analyzed all of the chromium speciation samples. There was no quality assurance (QA) laboratory for this activity. UI was selected prior to sampling, and was proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 12 soil samples were collected and submitted to UI for chromium speciation analyses. All sample submittals were made under chain-of-custody protocols. UI analyzed the samples for the following:

- M6010-Total chromium (M3050 preparation)
- M7196-Hexavalent chromium (M3060 preparation)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for this chromium speciation activity were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All UI calibrations calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications (check standards).

All UI spike recoveries were acceptable.

All UI duplicate samples were acceptable.

Laboratory control samples (LCS) were analyzed by UI were aceptable.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). All UI blanks were reported below the detection limit.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). UI data were complete. UI provided raw data packets that contained information on the specific analytes for which samples were analyzed. Analytical data were discoverable in raw data packets. UI analyzed metals within established holding times. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: UI	SDG: UI Project ID: ejul0410
SAMPLES/MATRIX/ANALYSES:	
• Task 4—Soil Investigation, chromium speciation	
• July 2004	
• Matrix: Sediment and Soil	
• Methods: - M6010-Total chromium (M3050 preparation) - M7196-Hexavalent chromium (M3060 preparation)	
• Analyses: See above.	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O				O
2. Holding Times	O				O
3. Calibration	O				O
4. Blanks	O				O
5. Interference Checks	N/A				N/A
6. LCS	O				N/A
7. Duplicate	O				O
8. Spike Recovery	O				O
9. GFAA Performance	N/A				N/A
10. Serial Dilution	N/A				N/A
11. Field Duplicates	N/A				N/A
12. Result Verification	O				O
13. Overall Assessment	O				O

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's July 2004 chromium speciation soil data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All UI data were acceptable.

Verified and Validated by: _Mark Rettmann_____ Date: _January 31, 2005__
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	__X_	___

___ Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
___ ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___ Standard Addition Results
___ ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

2. Holding times (check all that apply)	__X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- UI holding times were met.
- No qualification necessary.

Acceptable
Yes No

3. Calibrations (check all that apply) __X_ ___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:
- UI - All calibrations were acceptable.
- No qualification necessary.

4. Blanks (check all that apply) _X_ ___

___Detects reported ICB/CCB, list:

___Detects in preparation blanks, list:

___Detects in field blanks, list:

Qualify as undetected (U) all sample concentrations $\leq$5 X any blank concentrations.

Comments/Qualified Results:

- UI – All blanks were non-detect.
- No qualification necessary.

	Acceptable Yes	No
5. Interference Checks (check all that apply)	_X_	___

_X_ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply) NA

_x_ LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
_x_ LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
_x_ LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___ LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- UI – Some total chromium %R's were low. N/A for hexavalent chromium.
- Qualify total chromium results >EDL of 1.5 mg/kg as estimated (J) and results <EDL as estimated (1.5 UJ).

7. Duplicate (check all that apply) _X_ ___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
___Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
___Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- UI – Labortory duplicates were acceptable.

Acceptable
Yes No

8. Spike Recovery (check all that apply) __X_ ___

_X_Spike %R with 75-125%
_X_Spike %R 30-74%, >125%, results >IDL estimated (J)
_X_Spike %R 30-74% results <IDL estimated (UJ)
___Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
___Spike % R >125%, results <IDL acceptable
___Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- UI – total chromium spike recoveries were acceptable. Some hexavalent chromium %R's were low.
- Qualify hexavalent chromium results >EDL as estimated (J) and sample results <EDL as estimated at the sample specific EDL (i.e., 0.20 U).

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- UI – not applicable.

10. Serial Dilution (check all that apply) __X_ ___

_X_Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- UI – not analyzed.

INORGANIC DATA ASSESSMENT SUMMARY

Acceptable
Yes No

11. Field Duplicates (check all that apply) NA

___Field duplicate RPD ≤20% waters (≤35% for soils)
___Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- UI - no field duplicates present.

12. Result Verification (check all that apply) __X_ ___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment __X_ ___

- For hexavalent chromium, qualify sample results >EDL as estimated (J) and sample results <EDL as estimated at the sample specific EDL (i.e., 0.20UJ).
- For total chromium, qualify results >EDL of 1.5mg/kg as estimated (J) and results <EDL as estimated (1.5UJ). No sample results were reported as <EDL.
- No other qualifications necessary.

P_4 PRODUCTION

SOILQUALITY (MASS WASTING) INVESTIGATION—JULY 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of July 2004 soil mass wasting completed as part of the Site Investigation (July 2004 Mass Wasting Sampling Effort). This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA soil samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 130 soil samples were collected and submitted to ACZ for analyses. Five of the 130 samples were selected and labeled as a "QA/QC sample." All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M7742 Modified AA-Hydride (Se)

The UI QC laboratory analyzed the samples for the following:

- 3050 ICP-MS (Se)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for July 2004 Mass Wasting Sampling Effort were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ calibrations and UI calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications.

ACZ spike recoveries were acceptable, but flagged for low recoveries. UI did not perform spike recoveries on the samples.

ACZ ran acceptable laboratory duplicates on the soil samples. Duplicate samples were validated from laboratory duplicates. UI analyzed duplicate samples from laboratory results. All results were acceptable.

Interference check samples were not analyzed for any analyte by either laboratory.

Laboratory control samples (LCS) were analyzed by ACZ for selenium results. Data from ACZ were flagged for low recoveries. UI results for the LCS were acceptable according to the criteria.

Neither laboratory performed serial dilutions on any of the analytes.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). All results were acceptable.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and UI as required. Analytical data were discoverable in raw data packets

from ACZ and UI. UI performed QA/QC analyses on all analytes analyzed by ACZ. UI analyzed all samples within specified holding times. ACZ analyzed metals within six months of collection. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids: L46806, L46922, L46924, L46930, L46931, L46932, L46934, L46936, L46937, L46939, L46940, L46943, and L46944. UI Project ID ESEP04-0506.
SAMPLES/MATRIX/ANALYSES:	
• Surface Soil Investigation – Mass Wasting	
• July 2004	
• Matrix: Surface soil	
• Method: ACZ: M7742 Modified AA-Hydride (Se) • UI: M6020 (ICP).	
• Analyses: ACZ: Se (M7742). UI: Se (M6020).	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	N/A	N/A			
6. LCS	O	O			
7. Duplicate	O	O			
8. Spike Recovery	N/A	O			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	N/A	N/A			
11. Field Duplicates	N/A	N/A			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's July 2004 soil data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ data were acceptable. All UI data were acceptable.

Verified and Validated by: __Paul Stenhouse_____ Date: __31 JAN 2005___
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	_X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
___ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
___ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

	Acceptable Yes	No
2. Holding times (check all that apply)	_X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- Above holding times are for water matrices. There are no holding times established for soil matrices. However, all samples were analyzed within six months of collection.

	Acceptable Yes	No
3. Calibrations (check all that apply)	_X_	___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable.

4. Blanks (check all that apply)	_X_	___

___Detects reported ICB/CCB, list:

___Detects in preparation blanks, list:

___Detects in field blanks, list:

Qualify as undetected (U) all sample concentrations ≤5 X any blank concentrations.

Comments/Qualified Results:

- ACZ - All blanks were reported below the detection limit and were acceptable.
- UI - All blanks were reported below the detection limit and were acceptable.

Acceptable
Yes No

5. Interference Checks (check all that apply) N/A

___ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:
- ACZ – Not Applicable.
- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply) __X_ ___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
_X_LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
_X_LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:
- ACZ - LCS and LCS duplicates were flagged due to low recovery.
- UI – All results were acceptable.

7. Duplicate (check all that apply) __X_ ___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
___Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
___Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:
- ACZ - duplicate results were acceptable.
- UI - duplicate results were acceptable.

Acceptable
Yes No

8. Spike Recovery (check all that apply) __X_ ___

_X_Spike %R with 75-125%
_X_Spike %R 30-74%, >125%, results >IDL estimated (J)
_X_Spike %R 30-74% results <IDL estimated (UJ)
___Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
_X_Spike % R >125%, results <IDL acceptable
_X_Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ—Data were flagged due to low recovery of spike matrices. Results were acceptable.
- UI—N/A.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) NA

___Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- ACZ – not analyzed.
- UI – not analyzed.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
11. Field Duplicates (check all that apply)	NA	

___Field duplicate RPD ≤20% waters (≤35% for soils)
___Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ - no field duplicates present.
- UI - no field duplicates present.

12. Result Verification (check all that apply) __X_ ___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment __X_ ___

- ACZ and UI data were acceptable. ACZ data were qualified for LCS and spike recoveries. UI data were acceptable. Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.
- Sample results <MDL (ACZ) or <EDL (UI) were qualified as undetected at the sample specific MDL/EDL (MDL/EDL-U).

P_4 PRODUCTION

MASS WASTING (VEGETATION) INVESTIGATION—JULY 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of July 2004 mass wasting vegetation investigation completed as part of the Mass Wasting Investigation Memorandum. This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA vegetation samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 130 vegetation samples were collected and submitted to ACZ for analyses. Five of the 130 samples were selected and labeled as a "QA/QC sample." All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M7742 Modified AA-Hydride (Se)

The UI QC laboratory analyzed the samples for the following:

- 3050 ICP-MS (Se)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for July 2004 Mass Wasting Sampling Effort were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ calibrations and UI calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications.

ACZ spike recoveries were acceptable. UI did not perform spike recoveries on the samples.

ACZ ran acceptable laboratory duplicates on the vegetation samples. Duplicate samples were validated from laboratory duplicates. UI analyzed duplicate samples from laboratory results. All results were acceptable.

Interference check samples were not analyzed for any analyte by either laboratory.

Laboratory control samples (LCS) were analyzed by ACZ for selenium results. Data were acceptable. UI results for the LCS were acceptable according to the criteria.

Neither laboratory performed serial dilutions on any of the analytes.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). All results were acceptable.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and UI as required. Analytical data were discoverable in raw data packets from ACZ and UI. UI performed QA/QC analyses on all analytes analyzed by ACZ. UI analyzed all samples within specified holding times. ACZ analyzed metals within six months of collection. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids: L46807, L46809, L46864, L46866, L46868, L46869, L46907, L46908, L46909, L46910, L46911, and L46912. UI Project ID ESEP04-0506.
SAMPLES/MATRIX/ANALYSES:	
• Surface Soil Investigation – Mass Wasting	
• July 2004	
• Matrix: Vegetation	
• Method: ACZ: M7742 Modified AA-Hydride (Se) • UI: 3050/6020 ICP.	
• Analyses: ACZ: Se (M7742). UI: Se (M6020).	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	N/A	N/A			
6. LCS	O	O			
7. Duplicate	O	O			
8. Spike Recovery	N/A	O			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	N/A	N/A			
11. Field Duplicates	N/A	O			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's July 2004 vegetation data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ data were acceptable. All UI data were acceptable.

Verified and Validated by: __Paul Stenhouse_____ Date: __31 JAN 2005___
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	_X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
___ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
___ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

	Acceptable Yes	No
2. Holding times (check all that apply)	_X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- Above holding times are for water matrices. There are no holding times established for vegetation matrices. However, all samples were analyzed within six months of collection.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
3. Calibrations (check all that apply)	_X_	___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable.

4. Blanks (check all that apply)	_X_	___

___Detects reported ICB/CCB, list:

___Detects in preparation blanks, list:

___Detects in field blanks, list:

Qualify as undetected (U) all sample concentrations $\leq$5 X any blank concentrations.

Comments/Qualified Results:

- ACZ - All blanks were reported below the detection limit and were acceptable.
- UI - All blanks were reported below the detection limit and were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

Acceptable
Yes No

5. Interference Checks (check all that apply) NA

___ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – Not Applicable.
- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply) __X_ ___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
_X_LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
_X_LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - All results were acceptable.
- UI – All results were acceptable.

7. Duplicate (check all that apply) __X_ ___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
___Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
___Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - duplicate results were acceptable.
- UI - duplicate results were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
8. Spike Recovery (check all that apply)	_X_	___

_X_Spike %R with 75-125%
_X_Spike %R 30-74%, >125%, results >IDL estimated (J)
___Spike %R 30-74% results <IDL estimated (UJ)
___Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
_X_Spike % R >125%, results <IDL acceptable
_X_Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ—Results were acceptable.
- UI—N/A.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) NA

___Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- ACZ – not analyzed.
- UI – not analyzed.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
11. Field Duplicates (check all that apply)	_X_	___

___Field duplicate RPD ≤20% waters (≤35% for soils)
_X_Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ – All results were acceptable.
- UI - no field duplicates present.

12. Result Verification (check all that apply)	_X_	___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment	_X_	___

- ACZ and UI data were acceptable. Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.
- Sample results <MDL (ACZ) or <EDL (UI) were qualified as undetected at the sample specific MDL/EDL (MDL/EDL-U).

P_4 PRODUCTION

GROUNDWATER QUALITY INVESTIGATION—SEPTEMBER 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of September 2004 groundwater data obtained as part of the Site Investigation (Task 3—Geology and Groundwater Investigation, Subtask 3a—Phase I Investigation, Activity 3a-5—sampling existing mine and domestic wells, springs and seeps). This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA groundwater samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 22 groundwater samples were collected and submitted to ACZ for analyses. Three of the 22 samples were selected and labeled as a "QA/QC sample." Four replicate samples, a source water blank, and an equipment blank were collected at each QA/QC stations with one of the four replicate samples being sent to the UI for analysis. All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M200.7 ICP (Ca, K, Mg, Na), dissolved

- M200.8 ICP-MS (Cd, Cr, Ni, V, and Zn), dissolved and/or total as requested
- SM3114B AA-Hydride (Se), dissolved and/or total as requested
- M300.0 Ion Chromotography (chloride and sulfate)
- SM2320B - titration (total alkalinity)

The UI QC laboratory analyzed the samples for the following:

- M200.7 ICP (Ca, K, Mg, Na), dissolved
- M200.8 ICP-MS (Cd, Cr, Ni, Se, V, and Zn), dissolved and/or total as requested
- M300.0 Ion Chromotography (chloride and sulfate)
- M310.1 (alkalinity)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for Task 3, Subtask 3a, Activity 3a-5—sampling existing mine and domestic wells, springs and seeps (September 2004 groundwater) were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ and UI calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications.

All ACZ spike recoveries were acceptable. UI did not perform spike recoveries on the samples.

ACZ ran acceptable laboratory duplicates on the samples. Duplicate samples were validated from field and laboratory duplicates. All UI duplicate results were acceptable.

ACZ Interference check samples were acceptable (Ca, Fe, Mg, K, and Na). UI did not analyze Interference check samples.

All ACZ and UI laboratory control samples (LCS) were acceptable.

Neither laboratory performed serial dilutions on any of the analytes.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). All ACZ blank results were acceptable except for

dissolved cadmium, (sample results <0.00075 were qualified as undetected, 0.00075U), dissolved chromium (sample results <0.0015 were qualified as undetected, 0.0015U), dissolved sodium (sample results <2.5 were qualified as undetected, 2.5U), dissolved nickel (sample results <0.0014 were qualified as undetected, 0.0014U), dissolved vanadium (sample results <0.00079 were qualified as undetected, 0.00079U), and dissolved zinc (sample results <0.015 were qualified as undetected, 0.015U). UI blank results reported no detections in any blank samples. The sample results associated with the detected blanks that were greater than the method detection limit and less than five times the detected blank were qualified as undetected. All other blank results were below detection limit.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and UI as required. Analytical data were discoverable in raw data packets from ACZ and UI. UI performed QA/QC analyses on all analytes analyzed by ACZ. ACZ and UI analyzed all samples within specified holding times. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids L47667, L47724, L47821, L47823, and L47824. UI Project ID wsep0415.
SAMPLES/MATRIX/ANALYSES:	
• Task 3—Geology and Groundwater Investigation, Subtask 3a—Phase I Investigation, Activity 3a-5—sampling existing mine and domestic wells, springs and seeps.	
• September 2004	
• Matrix: Groundwater	
• Methods: • ACZ: M200.7 ICP (Ca, K, Mg, Na)-dissolved, M200.8 ICP-MS (Cd, Cr, Ni, V, and Zn)-dissolved and/or total as requested, SM3114B AA-Hydride (Se)-dissolved and/or total as requested, M300.0 Ion Chromotography (chloride and sulfate), SM2320B titration (total alkalinity). • UI: M200.7 ICP (Ca, K, Mg, Na)-dissolved, M200.8 ICP-MS (Cd, Cr, Ni, Se, V, and Zn)-dissolved and/or total as requested, M300.0 Ion Chromotography (chloride and sulfate), M310.1 (alkalinity).	
Analyses: See above analyses under the methods section.	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	O, N/A	N/A			
6. LCS	O	O			
7. Duplicate	O	O			
8. Spike Recovery	O, N/A	O, N/A			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	N/A	N/A			
11. Field Duplicates	O, N/A	N/A			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's September 2004 ground water data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ and UI data were acceptable with some qualifications.

Verified and Validated by: _Mark Rettmann_____ Date: _February 1, 2005_____
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	_X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
_X_ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
_X_ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:
- No qualification necessary.

2. Holding times (check all that apply)	_X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:
- Holding times were met.
- No qualification necessary.

Acceptable
Yes No

3. Calibrations (check all that apply) __X_ ___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable.

4. Blanks (check all that apply) _X_ ___

_x_Detects reported ICB/CCB, list:
- Dis. Cd: WG179201 CCB 2&3 = 0.00013 and 0.00011, WG179199 CCB3 = 0.00015, WG179716 CCB3 = 0.00011, and WG179843 CCB 2&3 = 0.00011 and 0.00011 (mg/L).
- Dis. V: WG179843 ICB = 0.000143; WG179716 CCB 1, 2 and 3 = 0.000058, 0.000082 and 0.000108; WG179843 CCB 1 and 2 = 0.000069 and 0.000158; WG180327 CCB1 = 0.000102 (mg/L).
- Dis. Ni: WG179199CCB3 = 0.00027; WG179201 CCB 2 and 3 = 0.00028 and 0.00027; WG179843 CCB 2 = 0.00024 (mg/L).
- Dis. Cr: WG179716 CCB 1and 2 = 0.00025 and 0.00013; WG179843 CCB 1,2, and 3 = 0.00011, 0.00021, and 0.00018; WG179249 CCB 2 and 3 = 0.0001 and 0.00014 (mg/L).

___Detects in preparation blanks, list:

_x_Detects in field blanks, list:
- Dis. Na: L47667-8 and 10 = 0.5 and 0.4; L47724-10 = 0.4 and L47821-2, 18, 20 = 0.4, 0.4, and 0.5 (mg/L).
- Dis. Zn: L47724-10 = 0.003; L47821-2 and 20 = 0.003 and 0.002 (mg/L).
- Dis. Ni: L47821-2 and 20 = 0.0007 and 0.0002 (mg/L).
- Dis. Cr: L47667-8 and 10 = 0.0001 and 0.0003 (mg/L).
- Dis. V: L47821-2, 18, and 20 = 0.00012, 0.00014, and 0.00009 (mg/L).

Qualify as undetected (U) all sample concentrations $\leq$5 X any blank concentrations.

Comments/Qualified Results:

- ACZ - All blanks were reported below the detection limit and were acceptable except for dis. cadmium, (sample results <0.00075 were qualified as undetected, 0.00075U), dis. chromium (sample results <0.0015 were qualified as undetected, 0.0015U), dis. sodium (sample results <2.5 were qualified as undetected, 2.5U), dis. nickel (sample results <0.0014 were qualified as undetected, 0.0014U), dis. vanadium (sample results <0.00079 were qualified as undetected, 0.00079U), and dis. zinc (sample results <0.015 were qualified as undetected, 0.015U).
- UI - All blanks were reported below the detection limit and were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
5. Interference Checks (check all that apply)	_X_	___

_X_ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – All ICS recoveries were acceptable (Ca, Fe, Mg, K, and Na).
- UI – Not Applicable.

	Acceptable Yes	No
6. Laboratory Control Samples (check all that apply)	_X_	___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
___LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
___LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - all LCS and LCS duplicates were acceptable (alkalinity only).
- UI - all LCS %R's were acceptable.

	Acceptable Yes	No
7. Duplicate (check all that apply)	_X_	___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
_X_Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
___Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - duplicate results were acceptable.
- UI - duplicate results were acceptable.

Acceptable
Yes No

8. Spike Recovery (check all that apply) __X_ ___

_X_Spike %R with 75-125%
___Spike %R 30-74%, >125%, results >IDL estimated (J)
___Spike %R 30-74% results <IDL estimated (UJ)
___Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
___Spike % R >125%, results <IDL acceptable
___Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ - all spike recoveries were acceptable.
- UI - not applicable.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) NA

___Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- ACZ – not analyzed.
- UI – not analyzed.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
11. Field Duplicates (check all that apply)	_X_	___

_x_Field duplicate RPD ≤20% waters (≤35% for soils)
_x_Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ - three field replicates were taken at each QA/QC station. No qualification requirements for field QC.
- UI - no field duplicates present.

12. Result Verification (check all that apply)	_X_	___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment	_X_	___

- ACZ and UI data were acceptable. No ACZ data were qualified except for dis. cadmium, (undetected, 0.00075U), dis. chromium (undetected, 0.0015U), dis. sodium (undetected, 2.5U), dis. nickel (undetected 0.0014U), dis. vanadium (undetected, 0.00079U), and dis. zinc (undetected, 0.015U) due to blank detections. No UI data were qualified.
- Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.
- Sample results <MDL (ACZ) or <EDL (UI) were qualified as undetected at the sample specific MDL/EDL (MDL/EDL-U), where appropriate, in addition to the above stated qualifications.

P_4 PRODUCTION

SURFACE SOIL INVESTIGATION—SEPTEMBER 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of September 2004 soil sampling completed as part of the Site Investigation (Task 4 – Surface Soil Investigation, Subtask 4b – Impacted Riparian Zone Soil Characterization). This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA soil samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 137 soil samples were collected and submitted to ACZ for analyses. Thirty-three of the 137 samples were selected and labeled as a "QA/QC sample." All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M6020 ICP-MS (Cd, Cr, Cu, Mo, Ni, V, and Zn)
- M7742 Modified AA-Hydride (Se)
- ASA No.9 29-2.2.4 Co (TOC)

- ASTM D 422 Hydrometer (Texture Classification)
- CLPSOW390, F, D (Percent Solids)
- M120.1 – Meter (Conductivity)
- USDA No. 60 21A (pH)

The UI QC laboratory analyzed the samples for the following:

- 3050 ICP-MS (Cd, Cr, Cu, Mo, Ni, Se, V, and Zn)
- ASTM D 422 Hydrometer (Texture Classification)
- Walkley/Black acid digestion (TOC)
- M120.1 – Meter (Conductivity)
- USDA No. 60 21A (pH)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for Subtask 4b—Impacted Riparian Zone Soil Characterization (September 2004 soil) were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ calibrations and UI calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications.

The majority of ACZ spike recoveries were acceptable. Four analyte runs reported various qualifications for spike recovery issues. Sample results greater than the MDL for Cd, Cu, Mo and V were qualified as estimated. Spike results for Ni, Cr, and Zn would have required sample results less than the MDL to be qualified as rejected; however no results were reported less than the MDL. The average of the spike recoveries per analyte was within the acceptable range. UI did not perform spike recoveries on the samples.

ACZ ran acceptable laboratory duplicates on the soil samples. Duplicate samples were validated from field and laboratory duplicates. UI analyzed duplicate samples for seven analytes. All results were acceptable.

Interference check samples (ICS) were analyzed by ACZ for seven analytes (Cd, Cr, Cu, Mo, Ni, V, and Zn). All results from ACZ were acceptable. Interference check samples were not analyzed for any analyte by UI.

Laboratory control samples (LCS) were analyzed by ACZ for seven analytes (Cd, Cr, Cu, Mo, Ni, V, and Zn). All results from ACZ were acceptable. UI results for the LCS were acceptable according to the criteria for Cd, Mo, Se, V, and Zn. LCS results for Cr and Ni from UI were not acceptable. Associated sample results from UI that were greater than the estimated detection limit (EDL) were qualified as estimated and results less than the EDL were qualified as undetected and estimated.

ACZ laboratory performed serial dilutions on seven analytes. Results for Mo, Ni, V, and Zn were acceptable. Sample results greater than fifty times the MDL for Cu, Cd, and Cr were qualified as estimated. UI did not perform serial dilutions on the samples.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). ACZ results showed five of eight analytes with blank detections in Cr, Cu, Mo, Ni, and V. UI results reported no detections in any blank samples. The sample results associated with the detected blanks that were greater than the method detection limit and less than five times the detected blank were qualified as undetected. All other blank results were below detection limit.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and UI as required. Analytical data were discoverable in raw data packets from ACZ and UI. UI performed QA/QC analyses on all analytes analyzed by ACZ. UI analyzed all samples within specified holding times. ACZ analyzed metals within six months of collection. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids L47671, L47672, L47673, L47715, L47726, L47728, L47847, L47848, and L47849. UI Project ID enov0404.
SAMPLES/MATRIX/ANALYSES:	
• Task 4—Surface Soil Investigation, Subtask 4b—Impacted Riparian Zone Soil Characterization	
• September 2004	
• Matrix: Surface Soil	
• Method: Refer to pages 1 and 2. • UI: Refer to page 2.	
• Analyses: ACZ: Cd, Cr, Co, Mo, Ni, V, Zn (M6020), Se (M7741), Percent Solids (CLPSOW390). UI: Cd, Mo, Ni, Se, V, Zn (M6020B), Cr (M6010).	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	O, N/A	N/A			
6. LCS	O	O			
7. Duplicate	O	O			
8. Spike Recovery	O, N/A	O			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	O, N/A	N/A			
11. Field Duplicates	O, N/A	O			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's September surface soil data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ and UI data were acceptable with some qualifications.

Verified and Validated by: _Mark Rettmann_____ Date: January 31, 2004_____
Reviewed and Approved by: _____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	_X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
_X_ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
_X_ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

	Acceptable Yes	No
2. Holding times (check all that apply)	_X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- All samples were analyzed within holding times.

	Acceptable Yes	No
3. Calibrations (check all that apply)	_X_	___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable.

4. Blanks (check all that apply)	_X_	___

___Detects reported ICB/CCB, list:

_X_Detects in preparation blanks, list: ACZ: Cu, Cr, Mo, Ni, V.

___Detects in field blanks, list:

Qualify as undetected (U) all sample concentrations ≤5 X any blank concentrations.

Comments/Qualified Results:

- ACZ - There were detections above the MDL in preparation blanks for Cu, Cr, Mo, Ni, and V. All associated sample results ≤5 times the highest blank concentration were qualified as undetected (i.e., Cr - 13.87U, Cu - 12.85U, Mo - 1.38U, Ni - 8.4U, V - 19.6U)
- UI - All blanks were reported below the detection limit and were acceptable.

Acceptable
Yes No

5. Interference Checks (check all that apply) __X_ ___

_X_ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – All ICS recoveries were acceptable.
- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply) __X_ ___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
_X_LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
_X_LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - all LCS and LCS duplicates were acceptable.
- UI - seven LCS's for Cr were <80%R and eight LCS's for Ni were <80%, UI results >EDL were qualified as estimated (J), and results <EDL as estimated at the sample specific EDL (i.e., 0.38UJ and 0.06UJ). Note, no sample results were reported <EDL. All other LCS/LCSD for all other analytes were acceptable. No other qualification necessary.

7. Duplicate (check all that apply) __X_ ___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
___Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
___Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - duplicate results were acceptable.
- UI - duplicate results were acceptable.

Acceptable
Yes No

8. Spike Recovery (check all that apply) __X_ ___

_X_Spike %R with 75-125%
_X_Spike %R 30-74%, >125%, results >IDL estimated (J)
___Spike %R 30-74% results <IDL estimated (UJ)
_X_Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
___Spike % R >125%, results <IDL acceptable
_X_Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ - Sample results greater than the MDL for Cd, Cu, Mo and V were qualified as estimated. Spike results for Ni, Cr, and Zn would have required sample results less than the MDL to be qualified as rejected; however no results were reported less than the MDL. Some sample concentrations exceeded the spike concentrations by a factor of four times or more. The average of the spike recoveries per analyte was within the acceptable range.
- UI - not applicable.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) __X_ ___

_X_Serial Dilution %D within 10% for sample results >50x the IDL
_X_Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- ACZ – serial dilution %D's were >10% for Cd, Cr, and Cu. The associated sample results that were >50 times the MDL were qualified as estimated. Results for Mo, Ni, V, and Zn were acceptable. No serial dilution performed for Se.
- UI – not analyzed.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
11. Field Duplicates (check all that apply)	NA	

_x_Field duplicate RPD ≤20% waters (≤35% for soils)
___Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ – all field duplicates acceptable.
- UI - no field duplicates present.

12. Result Verification (check all that apply) __X_ ___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment __X_ ___

- ACZ and UI data were acceptable. ACZ data were qualified (flagged) as follows: >50 x MDL as estimated (J) (Cd, Cr, Cu), >MDL as estimated (J) (Cd, Cu, Mo, V), and ≤5 x highest blank detection as undetected (U) (Cr, Cu, Mo, Ni, V). UI data were qualified as follows: >EDL as estimated (J) (Cr, Ni) and <EDL as estimated (J) (Cr, Ni). Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.
- No sample results were reported <MDL (ACZ) or <EDL (UI).

P_4 PRODUCTION

TERRESTRIAL ECOLOGICAL (VEGETATION)

INVESTIGATION—SEPTEMBER 2004S

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of September 2004 vegetation investigation completed as part of Task 6—Terrestrial Ecological Investigation (Subtask 6b—Characterization of extent of riparian zone vegetation contamination at streams, ponds, seeps, springs, and wetlands). This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA vegetation samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 113 vegetation samples were collected and submitted to ACZ for analyses. Ten of the 113 samples were selected and labeled as a "QA/QC sample." All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M6020 ICP-MS (Cd, Cu, Mo, and Zn)
- M7742 Modified AA-Hydride (Se)

The UI QC laboratory analyzed the samples for the following:

- 3050/6020 ICP (Cd, Cu, Mo, Se, and Zn)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for September 2004 Riparian Vegetation Sampling Effort were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ calibrations and UI calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications.

ACZ spike recoveries were generally acceptable. Copper and molybdenum were flagged for poor recoveries. UI did not perform spike recoveries on the samples.

ACZ ran generally acceptable laboratory duplicates on the vegetation samples. Copper results were flagged. Duplicate samples were validated from laboratory duplicates. UI analyzed duplicate samples from laboratory results. All results were acceptable.

Interference check samples were not analyzed for any analyte by either laboratory.

Laboratory control samples (LCS) were analyzed by ACZ for all analytes. Data were acceptable. UI results for the LCS were acceptable according to the criteria.

Neither laboratory performed serial dilutions on any of the analytes.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). ACZ reported blank detections for copper, molybdenum, and zinc. Various results were flagged as estimated. All results from UI were acceptable.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and UI as required. Analytical data were discoverable in raw data packets from ACZ and UI. UI performed QA/QC analyses on all analytes analyzed by ACZ. UI analyzed all samples within specified holding times. ACZ analyzed metals within six months of collection. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids: L47668, L47669, L47670, L47708, L47709, L47710, L47712, L47713, L47714, L47839, L47845, and L47846. UI Project ID ENOV04-03.
SAMPLES/MATRIX/ANALYSES:	
• Terrestrial Ecological Investigation – Riparian Vegetation	
• September 2004	
• Matrix: Vegetation	
• Method: ACZ: M6020 ICP-MS (Cd, Cu, Mo, Zn), M7742 Modified AA-Hydride (Se) • UI: 3050/6020 ICP (Cd, Cu, Mo, Se, Zn).	
• Analyses: ACZ: Cd, Cu, Mo, Zn (M6020), Se (M7742). UI: Cd, Cu, Mo, Se, Zn (M6020).	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	N/A	N/A			
6. LCS	O	O			
7. Duplicate	O	O			
8. Spike Recovery	O, X, N/A	O			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	O, N/A	N/A			
11. Field Duplicates	O, N/A	O			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's September 2004 Riparian Vegetation Investigation data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ data were acceptable. All UI data were acceptable.

Verified and Validated by: __Paul Stenhouse_____ Date: __1 FEB 2005___
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	__X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
___ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
___ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

2. Holding times (check all that apply)	__X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- Above holding times are for water matrices. There are no holding times established for vegetation matrices. However, all samples were analyzed within six months of collection.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
3. Calibrations (check all that apply)	_X_	___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable.

4. Blanks (check all that apply)	_X_	___

___Detects reported ICB/CCB, list:

_X_Detects in preparation blanks, list:
ACZ—Detections in Cu, Mo.

_X_Detects in field blanks, list:
ACZ—Detections in Zn.

Qualify as undetected (U) all sample concentrations $\leq$5 X any blank concentrations.

Comments/Qualified Results:

- ACZ – Copper, molybdenum, and zinc were flagged for blank detections. All other analytes were acceptable.
- UI - All blanks were reported below the detection limit and were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
5. Interference Checks (check all that apply)	_X_	___

_X_ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
_X_ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
_X_ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – Copper results flagged as estimated. All other results acceptable. Not run for selenium analyses.
- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply)	_X_	___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
___LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
___LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - All results were acceptable.
- UI – All results were acceptable.

7. Duplicate (check all that apply)	_X_	___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
___Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
_X_Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - duplicate results were generally acceptable. Copper was flagged for RPD outside of acceptable range.
- UI - duplicate results were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
8. Spike Recovery (check all that apply)	_X_	___

_X_Spike %R with 75-125%
_X_Spike %R 30-74%, >125%, results >IDL estimated (J)
_X_Spike %R 30-74% results <IDL estimated (UJ)
_X_Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
_X_Spike % R >125%, results <IDL acceptable
_X_Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ—Results were generally acceptable. Spike results for copper and molybdenum were flagged for poor recovery.
- UI—N/A.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) _X_ ___

_X_Serial Dilution %D within 10% for sample results >50x the IDL
_X_Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- ACZ – Results were acceptable.
- UI – not analyzed.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
11. Field Duplicates (check all that apply)	_X_	___

___Field duplicate RPD ≤20% waters (≤35% for soils)
_X_Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ – All results were acceptable.
- UI - No field duplicates present.

12. Result Verification (check all that apply)	_X_	___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment	_X_	___

- ACZ and UI data were acceptable. Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.
- Sample results <MDL (ACZ) or <EDL (UI) were qualified as undetected at the sample specific MDL/EDL (MDL/EDL-U).
- ACZ data for copper, molybdenum, and zinc were flagged for various reasons.

P_4 PRODUCTION

GROUNDWATER QUALITY INVESTIGATION—OCTOBER 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of October 2004 groundwater data obtained as part of the Site Investigation (Task 3—Geology and Groundwater Investigation, Subtask 3a—Phase I Investigation, Activity 3a-5—sampling existing mine and domestic wells, springs and seeps). This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA groundwater samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 7 groundwater samples were collected and submitted to ACZ for analyses. Two of the 7 samples were selected and labeled as a "QA/QC sample." Four replicate samples, a source water blank, and an equipment blank were collected at each QA/QC stations with one of the four replicate samples being sent to the UI for analysis. All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M200.7 ICP (Ca, K, Mg, Na), dissolved

- M200.8 ICP-MS (Cd, Cr, Ni, V, and Zn), dissolved and/or total as requested
- SM3114B AA-Hydride (Se), dissolved and/or total as requested
- M300.0 Ion Chromotography (chloride and sulfate)
- SM2320B - titration (total alkalinity)

The UI QC laboratory analyzed the samples for the following:

- M200.7 ICP (Ca, K, Mg, Na), dissolved
- M200.8 ICP-MS (Cd, Cr, Ni, Se, V, and Zn), dissolved and/or total as requested
- M300.0 Ion Chromotography (chloride and sulfate)
- M310.1 (alkalinity)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for Task 3, Subtask 3a, Activity 3a-5—sampling existing mine and domestic wells, springs and seeps (October 2004 groundwater) were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ and UI calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications.

All ACZ spike recoveries were acceptable. UI did not perform spike recoveries on the samples.

ACZ ran acceptable laboratory duplicates on the samples. Duplicate samples were validated from field and laboratory duplicates. All UI duplicate results were acceptable.

ACZ Interference check samples were acceptable (Ca, Fe, Mg, K, and Na). UI did not analyze Interference check samples.

ACZ and UI did not analyze laboratory control samples (LCS).

Neither laboratory performed serial dilutions on any of the analytes.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). All ACZ blank results were acceptable except for dis. calcium (11U), dis. cadmium (0.0025U), dis. chromium (0.075U), dis. magnesium (2.5U), dis. nickel (0.065U), dis. potassium (3.0U), dis. vanadium (0.0058U), dis. sodium (315U), dis. zinc (5.35U), sulfate (8.0U), and chloride (6.5U). UI blank results reported no detections in any blank samples. The sample results associated with the detected blanks that were greater than the method detection limit and less than five times the detected blank were qualified as undetected. All other blank results were below detection limit.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and UI as required. Analytical data were discoverable in raw data packets from ACZ and UI. UI performed QA/QC analyses on all analytes analyzed by ACZ. ACZ and UI analyzed all samples within specified holding times. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids L48205 and L48206. UI Project ID woct0408.
SAMPLES/MATRIX/ANALYSES:	
• Task 3—Geology and Groundwater Investigation, Subtask 3a—Phase I Investigation, Activity 3a-5—sampling existing mine and domestic wells, springs and seeps.	
• October 2004	
• Matrix: Groundwater	
• Methods: • ACZ: M200.7 ICP (Ca, K, Mg, Na)-dissolved, M200.8 ICP-MS (Cd, Cr, Ni, V, and Zn)-dissolved and/or total as requested, SM3114B AA-Hydride (Se)-dissolved and/or total as requested, M300.0 Ion Chromotography (chloride and sulfate), SM2320B titration (total alkalinity). • UI: M200.7 ICP (Ca, K, Mg, Na)-dissolved, M200.8 ICP-MS (Cd, Cr, Ni, Se, V, and Zn)-dissolved and/or total as requested, M300.0 Ion Chromotography (chloride and sulfate), M310.1 (alkalinity).	
Analyses: See above analyses under the methods section.	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	O, N/A	N/A			
6. LCS	N/A, O	N/A, O			
7. Duplicate	O	O			
8. Spike Recovery	O, N/A	O, N/A			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	N/A	N/A			
11. Field Duplicates	O, N/A	N/A			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's October 2004 ground water data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ and UI data were acceptable with some qualifications.

Verified and Validated by: _Mark Rettmann_____ Date: _February 1, 2005_____
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	__X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
_X_ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
_X_ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

2. Holding times (check all that apply)	__X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- Holding times were met.
- No qualification necessary.

Acceptable
Yes No

3. Calibrations (check all that apply) __X_ ___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable.

4. Blanks (check all that apply) _X_ ___

_x_Detects reported ICB/CCB, list:
- Dis. V: WG181396 CCB 2 and 3 = 0.000436 and 0.001149; WG181561 CCB 1 and 2 = 0.00009 and 0.000233 (mg/L).

___Detects in preparation blanks, list:

_x_Detects in field blanks, list:
- Dis. Ca: L48205 - 8 and 10 = 1.4 and 2.2 (mg/L).
- Dis. Cd: L48205-8 and 10 = 0.0005 and 0.0002 (mg/L).
- Dis. Cr: L48205 – 8 and 10 = 0.0149 and 0.0006 (mg/L).
- Dis. Mg: L48205 – 8 and 10 = 0.4 and 0.5 (mg/L).
- Dis. Na: L48205 – 6, 8, 10, and 12 = 0.4, 62.9, 2.9, and 0.5 (mg/L).
- Dis. Ni: L48205 – 6, 8, and 10 = 0.0003, 0.013, and 0.002 (mg/L).
- Dis. K: L48205 – 8 = 0.6 (mg/L).
- Dis. V: L48208 – 8 = 0.0009 (mg/L).
- Dis. Zn: L48205 – 8 and 10 = 1.07 and 0.095 (mg/L).
- Chloride: L48205 – 8 and 10 = 1.3 and 0.7 (mg/L).
- Sulfate: L48205 – 8 and 10 = 1.6 and 0.7 (mg/L).

Qualify as undetected (U) all sample concentrations $\leq$5 X any blank concentrations.

Comments/Qualified Results:

- ACZ - All blanks were reported below the detection limit and were acceptable except for the following undetected qualifications: dis. calcium (11U), dis. cadmium (0.0025U), dis. chromium (0.075U), dis. magnesium (2.5U), dis. nickel (0.065U), dis. potassium (3.0U), dis. vanadium (0.0058U), dis. sodium (315U), dis. zinc (5.35U), sulfate (8.0U), and chloride (6.5U). All other blanks were reported as non-detected.
- UI - All blanks were reported below the detection limit and were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

Acceptable
Yes No

5. Interference Checks (check all that apply) __X_ ___

_X_ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – All ICS recoveries were acceptable (Ca, Fe, Mg, K, and Na).
- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply) __X_ ___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
___LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
___LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - Not Applicable.
- UI - all LCS %R's were acceptable.

7. Duplicate (check all that apply) __X_ ___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
_X_Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
___Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - duplicate results were acceptable.
- UI - duplicate results were acceptable.

Acceptable
Yes No

8. Spike Recovery (check all that apply) __X_ ___

_X_Spike %R with 75-125%
___Spike %R 30-74%, >125%, results >IDL estimated (J)
___Spike %R 30-74% results <IDL estimated (UJ)
___Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
___Spike % R >125%, results <IDL acceptable
___Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ - all spike recoveries were acceptable.
- UI - not applicable.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) NA

___Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- ACZ – not analyzed.
- UI – not analyzed.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
11. Field Duplicates (check all that apply)	_X_	___

___Field duplicate RPD ≤20% waters (≤35% for soils)
___Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ - three field replicates were taken at each QA/QC station. No qualification requirements for field QC.
- UI - no field duplicates present.

12. Result Verification (check all that apply)	_X_	___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment	_X_	___

- ACZ data were acceptable with some minor qualifications. ACZ data were qualified as undetected for blank detections as follows: dis. calcium (11U), dis. cadmium (0.0025U), dis. chromium (0.075U), dis. magnesium (2.5U), dis. nickel (0.065U), dis. potassium (3.0U), dis. vanadium (0.0058U), dis. sodium (315U), dis. zinc (5.35U), sulfate (8.0U), and chloride (6.5U). All other blanks were reported as non-detected. All UI data were acceptable.
- Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.
- Sample results <MDL (ACZ) or <EDL (UI) were qualified as undetected at the sample specific MDL/EDL (MDL/EDL-U), where appropriate, in addition to the qualifications indicated above.

P_4 PRODUCTION

SEASONAL VEGETATION INVESTIGATION—MAY–OCTOBER 2004

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT

The following is a summary of the data validation and quality control (QC) review of seasonal vegetation investigation completed as part of the P_4 Production SI Seasonal Vegetation Investigation Memorandum. This effort was completed on behalf of P_4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. The University of Idaho (UI) was the quality assurance (QA) laboratory tasked with analyzing QA vegetation samples. Both laboratories were selected prior to sampling, and both were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ and UI were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

A total of 36 vegetation samples were collected and submitted to ACZ for analyses. Five of the 36 samples were selected and labeled as a "QA/QC sample." All sample submittals were made under chain-of-custody protocols. ACZ analyzed the samples for the following:

- M7742 Modified AA-Hydride (Se)

The UI QC laboratory analyzed the samples for the following:

- 3050 ICP-MS (Se)

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for the Seasonal Vegetation Investigation were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

All ACZ calibrations and UI calibrations were acceptable. Calibrations were run as initial calibration verifications and continuing calibration verifications.

ACZ spike recoveries were generally acceptable. June and October data were flagged for spike recovery issues. UI did not perform spike recoveries on the samples.

ACZ ran acceptable laboratory duplicates on the vegetation samples. Duplicate samples were validated from laboratory duplicates. UI analyzed duplicate samples from laboratory results. All results were acceptable.

Interference check samples were not analyzed for any analyte by either laboratory.

Laboratory control samples (LCS) were analyzed by ACZ for selenium results. Data were acceptable. UI results for the LCS were generally acceptable according to the criteria. Data from May 2004 were flagged for LCS results.

Neither laboratory performed serial dilutions on any of the analytes.

Representativeness

Representativeness is evaluated by reviewing blank results. Blanks are analyzed before and during the analytical process. ACZ and UI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). All results were acceptable.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004). ACZ and UI lab data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and UI as required. Analytical data were discoverable in raw data packets

from ACZ and UI. UI performed QA/QC analyses on all analytes analyzed by ACZ. UI analyzed all samples within specified holding times. ACZ analyzed metals within six months of collection. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and UI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, which is recognized by the EPA in analyzing samples. Detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses." Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D.C.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P_4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: UI	SDG: ACZ Project Ids: L46807, L46809, L46864, L46866, L46868, L46869, L46907, L46908, L46909, L46910, L46911, and L46912. UI Project ID ESEP04-0506.
SAMPLES/MATRIX/ANALYSES:	
• Surface Soil Investigation – Mass Wasting	
• July 2004	
• Matrix: Vegetation	
• Method: ACZ: M7742 Modified AA-Hydride (Se) • UI: 3050/6020 ICP.	
• Analyses: ACZ: Se (M7742). UI: Se (M6020).	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA	HG	CYANIDE	OTHER
1. Data Completeness	O	O			
2. Holding Times	O	O			
3. Calibration	O	O			
4. Blanks	O	O			
5. Interference Checks	N/A	N/A			
6. LCS	O	O			
7. Duplicate	O	O			
8. Spike Recovery	N/A	O			
9. GFAA Performance	N/A	N/A			
10. Serial Dilution	N/A	N/A			
11. Field Duplicates	N/A	O, N/A			
12. Result Verification	O	O			
13. Overall Assessment	O	O			

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P_4 Production's Seasonal Vegetation Investigation data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ data were acceptable. See discussion in each section below for flagging. All UI data were acceptable.

Verified and Validated by: __Paul Stenhouse_____ Date: __2 FEB 2005___
Reviewed and Approved by:_____ Date: _____

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	__X_	___

_X_Case narrative
_X_Chain of custody
_X_Sample Results
_X_ICV/CCV Results
_X_Blank Results
___ICP Interference Check Results
_X_Spike Recovery Results
_X_Duplicate Results
_X_LCS Results
___Standard Addition Results
___ICP Serial Dilution

_X_Instrument Det. Limits
___ICP Correction Factors
___ICP Linear Ranges
_X_Preparation Logs
_X_Analysis Run Logs
_X_ICP Raw Data
___GFAA Raw Data
___Hg Raw Data
___Cyanide Raw Data
___Other_____

Comments/Qualified Results:

- No qualification necessary.

2. Holding times (check all that apply)	__X_	___

_X_ICP/GFAA metals completed in <6 mos from collection
___Mercury analyzed in <28 days from collection
___Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2 X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- Above holding times are for water matrices. There are no holding times established for vegetation matrices. However, all samples were analyzed within six months of collection.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
3. Calibrations (check all that apply)	_X_	___

___GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
_X_ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
___ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
___ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
___ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
___ICV/CCV %R, ICP 75-89% or 111-125%, Hg 65-79% or 121-135%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- UI - All calibrations were acceptable.

4. Blanks (check all that apply)	_X_	___

___Detects reported ICB/CCB, list:

___Detects in preparation blanks, list:

___Detects in field blanks, list:

Qualify as undetected (U) all sample concentrations $\leq$5 X any blank concentrations.

Comments/Qualified Results:

- ACZ - All blanks were reported below the detection limit and were acceptable.
- UI - All blanks were reported below the detection limit and were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

Acceptable
Yes No

5. Interference Checks (check all that apply) NA

___ICS A/B Recoveries Acceptable
___Al, Ca, Fe, Mg sample concentrations >ICS concentrations
___ICS %R> 120%, results > IDL estimated (J)
___ICS %R 50-79%, results>IDL estimated (J), possible false negative
___ICS %R 50-79%, results <IDL estimated (UJ)
___ICS %R <50%, results >IDL and <IDL rejected (R/UR)
___ICS %R>120, results <IDL acceptable

Comments/Qualified Results:

- ACZ – Not Applicable.
- UI – Not Applicable.

6. Laboratory Control Samples (check all that apply) __X_ ___

_X_LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
_X_LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
_X_LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
___ LCS %R <50% and all results rejected (R/UR)
___LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - All results were generally acceptable. Results were flagged in June and August for recovery issues.
- UI – All results were generally acceptable. Results were flagged in May for recovery issues.

7. Duplicate (check all that apply) __X_ ___

_X_Duplicate RPD $\leq$20% for waters ($\leq$35% for soils) for results >5X CRDL
___Duplicate Range is within $\pm$CRDL ($\pm$2xCRDL for soils) for results $\leq$ 5X CRDL
___Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - duplicate results were acceptable.
- UI - duplicate results were acceptable.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
8. Spike Recovery (check all that apply)	_X_	___

_X_Spike %R with 75-125%
_X_Spike %R 30-74%, >125%, results >IDL estimated (J)
_X_Spike %R 30-74% results <IDL estimated (UJ)
___Spike %R <30%, results <IDL rejected (UR)
___Field blank used for spike analysis
_X_Spike % R >125%, results <IDL acceptable
_X_Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ—Results were acceptable.
- UI—N/A.

9. GFAA Performance (check all that apply) NA

___Duplicate injection RSD<20%
___Duplicate injection RSD>20%, results >CRDL estimated (J)
___Analytical spike %R 85-115%
___Analytical spike %R 40-85%, results >IDL estimated (J)
___Analytical spike %R 10-40%, results <IDL estimated (UJ)
___Analytical spike %R <10%, results <IDL rejected (R)
___Analytical spike %R <40%, results >IDL estimated (J)
___MSA required but not run, results estimated (J)
___MSA run at incorrect level, results estimated (J)
___MSA correlation coefficient <0.995, results estimated (J)

Comments/Qualified Results:

- ACZ – not applicable.
- UI – not applicable.

10. Serial Dilution (check all that apply) NA

___Serial Dilution %D within 10% for sample results >50x the IDL
___Serial Dilution %D greater than 10%, results >50x the IDL estimated (J)

Comments/Qualified Results:

- ACZ – not analyzed.
- UI – not analyzed.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
11. Field Duplicates (check all that apply)	_X_	___

_X_Field duplicate RPD ≤20% waters (≤35% for soils)
___Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ – All results were acceptable.
- UI - no field duplicates present.

12. Result Verification (check all that apply)	_X_	___

_X_All results supported in raw data

Comments/Qualified Results:

- ACZ - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- UI - all results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

13. Overall Assessment	_X_	___

- ACZ and UI data were acceptable. Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and UI.
- Sample results <MDL (ACZ) or <EDL (UI) were qualified as undetected at the sample specific MDL/EDL (MDL/EDL-U).

May 2004 Uncensored Validated Forage Fish Data - Total Metals (mg/kg dw)													
Feature	**Station Name**	**Station**	**Selenium**	**Flag**	**Cadmium**	**Flag**	**Nickel**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**	**%Solid[b]**
Blackfoot River	Above Blackfoot Reservoir	MST232-1	9.1		0.069	0.070 U	3.6		0.58		100		27
		MST232-2	7.7		0.13		4.6		0.60		99		24
		MST232-3	12		0.066	0.090 U	3.8		0.44		170		23
	Below Woodall Mountain Creek	MST231-1	7.2		0.034	0.070 U	2.1		0.29		110		28
		MST231-2	7.3		0.13		4.3		0.39		160		23
		MST231-3	14		0.13		4.0		0.81		140		22
	Below Ballard Creek	MST019-1[a]	7.0		0.12		1.8		1.1		76		24
		MST019-2	10		0.070		5.1		2.2		76		29
		MST019-3	9.4		0.12		1.2		0.70		210		24
	Below State Land Creek	MST020-1	13		0.059		1.5		0.73		220		22
		MST020-2	10		0.047	0.080 U	1.2		0.63		210		26
		MST020-3	8.8		0.12	0.13 U	1.4		0.71		260		23
	Above State Land Creek	MST230-1	9.3		0.13		1.3		0.66		220		23
		MST230-2	8.4		0.093	0.13 U	1.6		0.97		280		23
		MST230-3	9.3		0.21		1.4		0.72		290		24
	Below Trail Creek	MST021-1	7.7		0.20		2.2		2.2		96		25
		MST021-2	11		0.089		1.4		0.76		180		23
		MST021-3	10		0.12		1.2		0.82		180		25
	Below Wooley Valley Creek	MST022-1	15		0.27		1.1		0.63		200		26
		MST022-2[a]	7.4		0.080	0.12 U	1.6		0.98		61		26
		MST022-3	15		0.10	0.10 U	1.8		0.81		270		20
	Below Dry Valley Creek, (1997 #20)	MST023-1	11		0.45		0.90		0.66		200		24
		MST023-2	10		0.070	0.080 U	0.57		0.72		200		24
		MST023-3	11		0.12		0.41		0.86		170		24
Blackfoot River	Above Dry Valley Creek, (1997 #19)	MST024-1	14		0.079	0.090 U	2.0		2.0		81		23
		MST024-2	11		0.066	0.080 U	2.8		2.3		98		24
		MST024-3	16		0.049	0.080 U	1.8		2.0		100		25
	Below Wooley Range Ridge Creek	MST025-1	9.5		0.19		2.1		1.6		89		21
		MST025-2	13		0.25		1.4		0.93		250		20
		MST025-3	12		0.080		0.80		0.72		160		25
	Above Wooley Range Ridge Creek	MST026-1	2.2		0.076	0.13 U	4.4		0.36		87		23
		MST026-2	0.49	1.1 U	0.11		3.7		0.18		97		28
		MST026-3	2.1		0.13		4.8		1.4		98		23
	Below Angus Creek	MST027-1	5.2		0.19		2.4		0.37		110		27
		MST027-2	11		0.17		3.0		1.1		82		24
		MST027-3	11		0.11		1.1		0.29		170		27
	Above Diamond Creek Road	MST028-1	6.7		0.080	0.13 U	1.1		0.58		180		23
		MST028-2	6.0		0.072	0.070 U	1.5		0.44		150		25
		MST028-3	7.2		0.12		1.7		0.36		170		25
	Below Spring Creek	MST229-1	7.1		0.084		1.3		0.42		160		24
		MST229-2	16		0.036	0.070 U	1.6		0.61		160		26
		MST229-3	23		0.079	0.16 U	3.7		0.67		180		25
	Above Spring Creek	MST029-1	11		0.060	0.070 U	1.6		0.44		230		25
		MST029-2	5.7		0.036	0.13 U	2.1		0.53		290		23
		MST029-3	19		0.20		2.9		0.63		150		25
Meadow Creek	Above Blackfoot Reservoir	MST235-1	2.8		0.008	0.070 U	1.3		0.40		82		25
		MST235-2[a]	1.4		0.11		8.9		0.97		78		28
		MST235-3	3.8		0.085		1.8		0.34		230		24
Little Blackfoot River	Above Blackfoot Reservoir	MST234-1	3.4		0.057	0.070 U	2.0		0.49		170		27
		MST234-2	5.0		0.084	0.13 U	3.1		0.38		220		24
		MST234-3	3.3		0.095	0.12 U	4.9		0.41		200		24
	Below Long Valley Creek	MST043-1	4.4		0.027	0.070 U	3.4		0.31		140		29
		MST043-2	5.7		0.081	0.070 U	3.4		0.36		170		25
		MST043-3	8.1		0.16		4.4		0.57		240		25
	Below Reese Creek	MST048-1	3.7		0.15		2.7		0.70		170		27
	Upstream of Henry cutoff	MST254-1	-0.12	2.4 U	0.16	0.24 U	24		0.95		180		25
Lone Pine Creek	Above Little Blackfoot River	MST053-1	4.3		0.24		12		0.53		250		21
		MST053-2	2.6		0.059	0.11 U	4.4		0.70		210		27
Angus Creek	Above Blackfoot River	MST126-1	9.2		0.26		0.35		0.61		170		23
		MST126-2	9.5		0.31		1.0		0.38		220		26
		MST126-3	10		0.59		-0.10	0.21 U	0.50		300		24
	Below No Name Creek	MST127-1	3.9		0.17		0.12	0.22 U	0.78		150		23
		MST127-2	4.9		0.10	0.12 U	0.17	0.20 U	0.85		150		25
		MST127-3	5.6		0.080		-0.044	0.20 U	0.52		160		25
	Above No Name Creek and below Rasmussen Creek	MST132-1	7.0		0.11	0.11 U	0.053	0.18 U	0.46		110		28
		MST132-2	12		0.53		0.26		2.4		110		23
		MST132-3	7.4		0.12		3.0		0.33		190		24
	Above Rasmussen Creek	MST128-1	3.5		0.17		3.6		1.6		78		23
		MST128-2	7.6		0.36		0.80		2.8		96		25
		MST128-3	2.5		0.046	0.070 U	0.25		0.78		62		28
	R-B&M-10, below Wooley Valley Mine	MST129-1	8.3		0.070	0.070 U	5.1		1.5		96		23
		MST129-2	2.5		0.18		5.0		1.8		85		28
		MST129-3	6.6		0.054	0.070 U	7.7		0.35		210		26
Rasmussen Creek	Above Angus Creek	MST131-1	5.8		0.12		6.4		1.8		100		26
		MST131-2	8.0		0.18		0.51		1.1		140		28
		MST131-3	5.1		0.21		4.6		1.6		95		24
Timber Creek	Above Diamond Creek	MST237-1	3.9		0.18		-0.011	0.22 U	0.57		110		23
		MST237-2	2.4		0.044	0.070 U	-0.14	0.20 U	0.72		73		25
		MST237-3	3.6		0.037	0.070 U	-0.10	0.16 U	0.71		51		25
Blackfoot Reservoir Delta	At Blackfoot River	MRV011-1	2.5		0.660	0.12 U	3.1		0.33		170		24
		MRV011-2	5.7		0.16	0.16 U	3.5		0.16		300		24
		MRV011-3	4.1		0.090	0.29 U	4.1		0.90		150		24
	At Little Blackfoot River	MRV016-1	2.3		0.11		1.5		0.45		130		27
		MRV016-2	4.2		0.13		5.0		0.46		200		24
		MRV016-3	2.0		0.065	0.070 U	1.3		0.57		150		25
	At Meadow Creek	MRV017-1	3.9		0.077	0.070 U	1.6		0.34		200		23
		MRV017-2	2.2		0.033	0.070 U	1.5		0.70		120		23
		MRV017-3	2.8		0.14		2.2		1.4		170		21

Notes:

[a] QA station, ACZ homogenized and prepared two replicates, one for ACZ analysis, one for UI analysis.

[b] Flags are not applicable, no data validation required.

Data validation was performed in accordance with *MWH SOP-NW-18.1* and *USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.*

Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.

Data qualifier definitions are:

(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration, or the sample detection limit.

(J) - The associated value is an estimated quantity.

(R) - The data are unusable.

(UJ) - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

N/A - Not Applicable.

May 2004 Uncensored Validated Salmonid Fish Data (mg/kg dw)														
Feature	**Station Name**	**Station**	**Sample Type[b]**	**Selenium**	**Flag**	**Cadmium**	**Flag**	**Nickel**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**	**%Solid[c]**
Blackfoot River	Below Dry Valley Creek, (1997 #20)	MST023-1[a]	fillet	6.0		0.0013	0.050 U	0.20		1.1		80		20
			whole-body	9.1		0.082	0.091 U	0.77		1.0		120		22
	Below Angus Creek	MST027-1[a]	fillet	6.1		0.032	0.043 U	0.39		0.30		87		23
			whole-body	8.0		0.24		1.4		0.40		150		25
Angus Creek	Above Blackfoot River	MST126-1[a]	fillet	4.1		0.23		6.8		0.27		55		22
			whole-body	5.6		0.64		3.3		0.52		130		25
		MST126-2	whole-body	4.8		0.70		3.6		0.78		100		23
		MST126-2-(Dup)	whole-body	5.2		0.70		0.91		1.6		120		23
	Above Rasmussen Creek	MST128-1[a]	fillet	4.8		0.061	0.087 U	0.20	0.22 U	0.43		40		23
			whole-body	6.3		0.21		0.092	0.46 U	0.58		83		24
	R-B&M-10, below Wooley Valley Mine	MST129-1[a]	fillet	6.7		0.21		0.25		0.29		54		24
			whole-body	8.4		0.44		2.9		0.48		84		25

Notes:

[a] QA station, ACZ initially prepared the fillet sample, then homogenized the remaining whole-body and prepared two whole-body replicates, one for ACZ analysis, one for UI analysis.

[b] Fillet refers to a sample of fillet tissue with skin, whole-body refers to a sample of the remaining whole-body.

[c] Flags are not applicable, no data validation required.

Data validation was performed in accordance with *MWH SOP-NW-18.1* and *USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses* .

Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.

Data qualifier definitions are:

(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration, or the sample detection limit.

(J) - The associated value is an estimated quantity.

(R) - The data are unusable.

(UJ) - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

N/A - Not Applicable.

May 2004 Uncensored Validated Groundwater - Dissolved Metals (mg/L)														
Feature	**Station Name**	**Station**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Nickel**	**Flag**	**Selenium**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Agricultural Well	School Bus Well	MAW001[a]	0.000060	0.00020 U	0.00013	0.00020 U	0.00060		0.00020	0.0010 U	0.00020		0.017	
	(b) Field Well	MAW002	0.000020	0.00020 U	-0.000040	0.00020 U	0.0012		-0.0011	0.0010 U	0.000060	0.0010 U	0.026	
	(b) (6) Field Well	MAW003	0.000020	0.00020 U	0.0013		0.00014	0.00040 U	-0.00083	0.0010 U	0.0017		0.18	
	(b) (6) Field Well	MAW004	0	0.00020 U	0.00013	0.00020 U	0.0028		0.00020	0.0010 U	0.00070		0.0080	
	(b) (6) Field Well	MAW005	0.00060		-0.000080	0.00020 U	0.0019		-0.00061	0.0010 U	0.00020		2.9	
Domestic Well	(b) (6) House Well	MDW001	0.000020	0.00020 U	0.00016	0.00020 U	0.0011		0.00018	0.0010 U	0.00020		0.020	
	(b) (6) House Well	MDW002	0.000040	0.00020 U	0.00060		0.0016		-0.00080	0.0010 U	0.0039		0.060	
	(b) (6) House Well	MDW003	-0.000020	0.00020 U	0.00040		0.0012		0.0010		0.00020		0.0022	0.0040 U
	(b) (6) House Well	MDW004	0.000050	0.00020 U	0.0011		0.00040		-0.000040	0.0010 U	0.0018		0.085	
	Cedar Bay RV Park Well	MDW005	0.000020	0.00020 U	0.00040		0.0016		0.00019	0.0010 U	0.00050		0.056	
	(b) House Well	MDW006	0.000020	0.00020 U	0.00070		0.00060		-0.00048	0.0010 U	0.0026		0.033	
Monitoring Well	Ballard Pit East Well	MMW001	0.0033		0.000020	0.00020 U	0.052		0.046		0.0055		0.28	
	Ballard Pit West Well	MMW002	0.000090	0.00020 U	0.00010	0.00020 U	0.0017		0.00033	0.0010 U	0.00010	0.0010 U	0.0039	0.0040 U
	Henry North Pit Monitoring Well S	MMW003	0.000040	0.00020 U	-0.00010	0.00020 U	0.0045		0.0050		0.000010	0.0010 U	0.0036	0.0040 U
	Henry North Pit Monitoring Well N	MMW004[a]	0.000040	0.00020 U	0.000070	0.00020 U	0.00051		-0.00061	0.0010 U	0.0013		0.0012	0.0040 U
Production Well	Agrium Production Well	MPW006	0.000020	0.00020 U	-0.000020	0.00020 U	0.0032		-0.00038	0.0010 U	0.0045		0.051	
	EVM Shop Well	MPW019	0.000040	0.00020 U	0.00018	0.00020 U	0.00033	0.00040 U	0.00083	0.0010 U	0.00020		0.036	
	Henry South Pit Production Well	MPW022	0	0.00020 U	0.00015	0.00020 U	0.00070		0.0030		0.00030		0.0014	0.0040 U
Piezometer	EVM Temporary Piezometer @ MDS025	MTP001	0.0036		0.015		0.044		2.8		0.12		0.018	

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

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N/A - Not Applicable.

May 2004 Uncensored Validated Groundwater - Total Metals (mg/L)															
Feature	**Station Name**	**Station**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Nickel**	**Flag**	**Selenium**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Agricultural Well	School Bus Well	MAW001[a]	0.00014	0.00020 U	0.00090		0.0014	0.0025 U	0.00053	0.0010 U	0.00073		0.024	0.16 U
	(b) Field Well	MAW002	0.000040	0.00020 U	0.000060	0.00020 U	0.0016	0.0025 U	-0.00064	0.0010 U	0.00010	0.0010 U	0.038	0.16 U
	(b) (6) Field Well	MAW003	0.00040		0.0044		0.0028		-0.00061	0.0010 U	0.0070		0.30	
	(b) (6) Field Well	MAW004	-0.000040	0.00020 U	0.00020		0.0049		-0.00094	0.0010 U	0.00070		0.037	0.16 U
	(b) (6) Field Well	MAW005	0.0016		0.0048		0.0038		-0.00016	0.0010 U	0.0024		21	
Domestic Well	(b) (6) House Well	MDW001	0.000050	0.00020 U	0.00040		0.0010	0.0025 U	0.00055	0.0010 U	0.00040		0.021	0.16 U
	(b) (6) House Well	MDW002	0.000050	0.00020 U	0.00060		0.00090	0.0025 U	-0.00054	0.0010 U	0.0041		0.045	0.16 U
	(b) House Well	MDW003	0.000070	0.00020 U	0.00070		0.0013	0.0025 U	0.0020	0.0010 U	0.00070		0.0050	0.16 U
	(b) (6) House Well	MDW004	0.000020	0.00020 U	0.0017		0.0015	0.0025 U	-0.00020	0.0010 U	0.0018		0.078	0.16 U
	Cedar Bay RV Park Well	MDW005	-0.000030	0.00020 U	0.00040		0.0025	0.0025 U	0.00022	0.0010 U	0.00040		0.052	0.16 U
	(b) House Well	MDW006	-0.000040	0.00020 U	0.00090		0.0011	0.0025 U	-0.00014	0.0010 U	0.0028		0.035	0.16 U

Notes:

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N/A - Not Applicable.

May 2004 Uncensored Validated Groundwater Data - Ions (mg/L)																
Feature	**Station Name**	**Station**	**Calcium**	**Flag**	**Chloride**	**Flag**	**Magnesium**	**Flag**	**Potassium**	**Flag**	**Sodium**	**Flag**	**Sulfate**	**Flag**	**Total Alkalinity**	**Flag**
Agricultural Well	School Bus Well	MAW001[a]	66		11		12		0.57		5.90		11		170	
	(b) Field Well	MAW002	62		3.2		22		2.0		22		0.091	0.50 U	250	
	(b) (6) Field Well	MAW003	34		4.8		8.6		0.40		9.0		6.4		110	
	(b) (6) Field Well	MAW004	180		7.5		61		4.8		10		7.7		700	
	(b) (6) Field Well	MAW005	110		140		38		5.7		103		270		150	
Domestic Well	(b) (6) House Well	MDW001	67		13		13		0.50		5.9		11		190	
	(b) (6) House Well	MDW002	54		32		19		2.4		21		44		150	
	(b) House Well	MDW003	74		7.8		6.5		0.50		6.0		6.4		190	
	(b) (6) House Well	MDW004	73		7.8		20		2.2		15		15		150	
	Cedar Bay RV Park Well	MDW005	150		17		38		2.4		16		44		460	
	(b) House Well	MDW006	66		58		27		2.8		45		100		150	
Monitoring Well	Ballard Pit East Well	MMW001	120		5.8		22		0.90		10		100		270	
	Ballard Pit West Well	MMW002	78		12		45		1.9		9.7		54		300	
	Henry North Pit Monitoring Well S	MMW003	54		34		21		2.2		21		81		120	
	Henry North Pit Monitoring Well N	MMW004[a]	76		67		26		3.6		46		130		140	
Production Well	Agrium Production Well	MPW006	72		3.9		28		1.3		18		120		160	
	EVM Shop Well	MPW019	72		6.1		9.9		0.80		6.9		8.3		220	
	Henry South Pit Production Well	MPW022	57		4.4		13		1.4		6.8		2.9		190	
Piezometer	EVM Temporary Piezometer @ MDS025	MTP001	75		4.3		16		1.2		6.3		160		110	

Notes:

[a] Average of the QA replicate samples reported.

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N/A - Not Applicable.

May 2004 Uncensored Validated Sediment Data - Total Metals (mg/kg dw)														
Feature	**Station Name**	**Station**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Nickel**	**Flag**	**Selenium**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Blackfoot River	Above Blackfoot Reservoir	MST232	1.1	J	16		10		1.2	J	16		40	J
	Below Woodall Mountain Creek	MST231[a]	0.69	J	9.9	13 U	6.7		0.28	0.50 UJ	9.7		24	J
	Below Ballard Creek	MST019	1.2	J	20		7.7		0.70	J	17		31	J
	Below State Land Creek	MST020	1.5	J	31		13		0.35	0.50 UJ	30		45	J
	Above State Land Creek	MST230[a]	2.9	J	37		9.2		0.83	J	27		36	J
	Below Trail Creek	MST021[a]	1.5	J	29		8.1		0.36	0.50 UJ	20		30	J
	Below Wooley Valley Creek	MST022	1.4	J	25		7.3		0.50	0.50 UJ	19		26	J
	Below Dry Valley Creek, (1997 #20)	MST023	1.8	J	30		6.8		1.0	J	22		26	J
	Above Dry Valley Creek, (1997 #19)	MST024	1.5	J	25		8.7		0.80	J	23		34	J
	Below Wooley Range Ridge Creek	MST025	0.55	J	12	13 U	6.4		1.5	J	13		30	J
	Above Wooley Range Ridge Creek	MST026	0.56	J	13		7.6		2.3	J	14		33	J
	Below Angus Creek	MST027	0.58	J	14		7.8		1.3	J	15		32	J
	Above Diamond Creek Rd.	MST028	0.50	J	13		7.9		0.90	J	14		30	J
	Below Spring Creek	MST229	0.56	J	15		8.2		2.7	J	16		34	J
	Above Spring Creek	MST029	0.37	J	15		7.4		-0.18	0.50 UJ	16		24	J
Meadow Creek	Above Blackfoot Reservoir	MST235	0.22	J	12	13 U	5.8	6.3 U	0.11	0.50 UJ	11		18	J
Little Blackfoot River	Above Blackfoot Reservoir	MST234[a]	0.94	J	24		15		1.5	J	17		93	J
	Below Long Valley Creek	MST043[a]	0.90	J	25		14		1.7	J	22		88	J
	Immediately below Henry Mine (1997 #24)	MST044	1.4	J	36		11		1.1	J	29		68	J
	Above Henry Creek (1997 #23)	MST045	0.66	J	25		12		1.1	J	21		49	J
	Below Lone Pine Creek	MST046	1.4	J	26		15		0.50	0.50 UJ	27		67	J
	Above Lone Pine Creek	MST047	0.90	J	28		16		0.33	0.50 UJ	34		82	J
	Below Reese Creek	MST048	0.80	J	27		17		0.90	J	28		81	J
	Above Reese Creek	MST049	1.2	J	26		16		0.43	0.50 UJ	29		76	J
	Upstream of Henry cutoff road	MST254[a]	0.78	J	20		13		0.16	0.50 UJ	23		75	J
Lone Pine Creek	Above Little Blackfoot River	MST053	1.4	J	29		15		0.41	0.50 UJ	30		63	J
	Above spring-fed creek	MST054	0.82	J	21		13		2.0	J	14		97	J
	Below Strip Mine Creek	MST055	2.2	J	35		14		1.0	J	41		67	J
	Above West Fork Lone Pine Creek	MST058	2.1	J	14		20		2.0	J	25		82	J
	Spring Fed Tributary Above Lone Pine Creek	MST277[a]	3.7	J	35		23		0.80	J	45		150	J
West Fork Lone Pine Creek	Above tributary to West Fork Lone Pine Creek	MST064	5.7	J	50		13		0.80	J	52		83	J
	Above Lone Pine Creek	MST057	4.5	J	24		15		4.4	J	28		93	J
Tributary to West Fork Lone Pine Creek	Above West Fork Lone Pine Creek	MST276	4.3	J	86		13		2.0	J	57		42	J
North Fork Lone Pine Creek	Northeast and above East Fork Lone Pine Creek	MST275	1.4	J	19		33		-0.049	0.60 UJ	40		45	J
Strip Mine Creek	Above Lone Pine Creek	MST062	1.1	J	16		8.6		0.35	0.60 UJ	13		43	J
	Below Henry Mine	MST063	1.7	J	24		20		0.43	0.60 UJ	31		73	J
Angus Creek	Above Blackfoot River	MST126[a]	6.3	J	62		21		0.75	0.50 UJ	68		83	J
	Below No Name Creek	MST127	2.4	J	36		25		0.60	J	38		110	J
	Above No Name Creek and below Rasmussen Creek	MST132	2.5	J	32		24		1.0	J	37		100	J
	Above Rasmussen Creek	MST128	2.1	J	28		23		0.90	J	37		90	J
	R-B&M-10, below Wooley Valley Mine	MST129	1.8	J	36		26		1.2	J	45		100	J
	R-B&M-12, below Upper Angus Creek Reservoir	MST130	11	J	120		74		14	J	120		300	J
West Fork Rasmussen Creek	Above Rasmussen Creek	MST274	2.1	J	30		27		2.5	J	39		130	J
Rasmussen Creek	Above Angus Creek	MST131	4.1	J	29		22		0.17	0.60 UJ	39		77	J
	M-B&M-1, below Enoch Valley Mine (1997 #38)	MST133	2.6	J	30		31		1.8	J	46		130	J
	Below West Pond Creek	MST134	2.4	J	26		23		1.1	J	39		110	J
	Above West Pond Creek	MST135	3.3	J	26		21		3.0	J	40		120	J
	Headwaters near Enoch Valley Mine Shop Pond	MST136	3.2	J	26		24		0.70	J	40		100	J
East Fork Rasmussen Creek	Above Rasmussen Creek	MST143	4.0	J	29		22		0.25	0.60 UJ	37		96	J
West Pond Creek	Headwaters, below West Pond	MST144	2.6	J	29		23		7.6	J	37		95	J
Long Valley Creek	Below Ballard Mine, (ponded area)	MST050	3.9	J	38		26		2.1	J	43		140	J

May 2004 Uncensored Validated Sediment Data - Total Metals (mg/kg dw)														
Feature	**Station Name**	**Station**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Nickel**	**Flag**	**Selenium**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Ballard Creek	Headwaters	MST067	34	J	200		160		82	J	270		890	J
Short Creek	Below Ballard Mine	MST069	11	J	31		84		420	J	27		310	J
Wooley Valley Creek	Above Blackfoot River	MST088												
	Above Loadout Creek at road	MST272	4.1	J	42		28		2.0	J	65		150	J
	Above ponding and below MST089	MST273	2.8	J	31		19		1.7	J	37		100	J
	Below North Fork Wooley Valley Creek	MST089	5.5	J	42		28		15	J	48		170	J
	Above North Fork Wooley Valley Creek	MST090	0.93	J	22		10		0.60	J	27		58	J
North Fork Wooley Valley Creek	Above Wooley Valley Creek	MST092	9.3	J	99		50		57	J	94		320	J
	Above Ballard Mine	MST093	1.8	J	28		20		0.072	0.50 UJ	38		93	J
Spring-fed tributary #1 of North Fork Wooley Valley Creek	Below Ballard Mine	MST094	1.3	J	40		24		8.2	J	43		100	J
Spring-fed tributary #2 of North Fork Wooley Valley Creek	Below Ballard Mine	MST095	11	J	95		58		22	J	86		250	J
Tributary of North Fork Wooley Valley Creek	Below Ballard Mine	MST096	0.55	J	29		14		17	J	25		80	J
Caldwell Creek	Below Phosphoria Formation outcrop (1997 #62)	MST101	1.8	J	22		21		0.70	J	26		90	J
Stewart Creek	Above Diamond Creek	MST236	3.1	J	32		24		0.27	0.60 UJ	37		120	J
Timber Creek	Above Diamond Creek	MST237	0.90	J	20		18		0.11	0.60 UJ	26		66	J
Blackfoot Reservoir Delta	At Blackfoot River	MRV011	1.2	J	21		12		1.0	J	21		46	J
	At Little Blackfoot River	MRV016	0.74	J	14		6.4		0.80	J	8.9		74	J
Springs	Hedin Spring	MSG001	0.64	J	23		21		0.60	J	35		71	J
	Taylor Spring	MSG002												
	Garden Hose Spring	MSG003	11	J	140		73		180	J	97		330	J
	Holmgren Spring	MSG004	9.1	J	490		310		29	J	56		340	J
	Cattle Spring	MSG005	1.5	J	29		26		8.8	J	33		92	J
	Ballard Mine Southeast Spring	MSG006	1.3	J	37		17		290	J	34		73	J
Ponds	Henry Mine Henry Pond	MSP014	21	J	220		100		19	J	180		620	J
	Henry Mine Smith Pond	MSP015	11	J	53		86		22	J	66		600	J
	Henry Mine Center Henry Pond	MSP016[a]	41	J	340		100		54	J	510		980	J
	Henry Mine South Pit Pond	MSP055	100	J	1000		1100		150	J	940		7900	J
	Ballard Mine Dredge Pond	MSP010	26	J	590		250		110	J	200		940	J
	Ballard Mine Lower Elk Pond	MSP012	140	J	730		190		63	J	540		1500	J
	Ballard Mine Northeast Pond	MSP013												
	Ballard Mine Pit #4 Stock Pond	MSP059	43	J	670		340		49	J	660		1800	J
	Ballard Mine Pit #6 Pond	MSP062	120	J	740		380		58	J	920		2400	J
	Enoch Valley Mine South Pond	MSP017	12	J	130		83		34	J	64		450	J
	Enoch Valley Mine Keyhole Pond	MSP018	1300	J	76		2600		150	J	320		26000	J
	Enoch Valley Mine Bat Cave Pond	MSP019	1.2	J	21		22		0.37	0.60 UJ	33		69	J
	Enoch Valley Mine West Pond	MSP020	23	J	170		160		12	J	93		950	J
	Enoch Valley Mine Stock Pond	MSP021[a]	25	J	190		130		23	J	130		880	J
	Enoch Valley Mine Tipple Pond	MSP022	33	J	290		150		25	J	440		1200	J
	Enoch Valley Mine Haul Road Pond	MSP023	23	J	340		120		25	J	400		730	J
	Enoch Valley Mine Shop Pond	MSP031	4.8	J	26		21		0.55	0.60 UJ	57		100	J
Seeps	Enoch Valley Mine West Dump Seep	MDS025	34	J	730		180		100	J	240		800	J
	Enoch Valley Mine South Dump Seep	MDS026	110	J	330		220		550	J	130		430	J
	Henry Mine South Pit Overburden Dump Seep (1997 #28)	MDS016	13	J	140		120		9.7	J	100		370	J
	Henry Mine South Pit Overburden Dump Limestone Drain (formerly FD002) (1997 #29)	MDS022	1.8	J	11	13 U	34		1.9	J	13		76	J
	Ballard Mine Pit #2 Upper Dump Seep	MDS030	3.3	J	38		25		250	J	39		89	J
	Ballard Mine Pit #2 Lower Dump Seep South	MDS031	8.3	J	110		97		83	J	37		350	J
	Ballard Mine Pit #2 Lower Dump Seep North	MDS032	8.3	J	75		78		1300	J	45		260	J
	Ballard Mine Goat Seep	MDS033	6.3	J	130		99		470	J	62		300	J

Notes:

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May 2004 Sediment Data - pH, TOC & Texture									
Feature	**Station Name**	**Station**	**pH[b]**	**Total Organic Carbon (%)[b]**	**Solids (%)[b]**	**Clay (%)[b]**	**Sand (%)[b]**	**Silt (%)[b]**	**Texture Class[b]**
Blackfoot River	Above Blackfoot Reservoir	MST232	7.6	1.2	50	10	58	33	SL
	Below Woodall Mountain Creek	MST231[a]	7.7	0.47	68	5.0	81	14	LS
	Below Ballard Creek	MST019	7.5	0.70	64	7.5	78	15	LS/SL
	Below State Land Creek	MST020	7.7	0.80	80	11	71	18	SL
	Above State Land Creek	MST230[a]	8.1	0.40	82	3.3	87	10	LS
	Below Trail Creek	MST021[a]	8.1	0.50	66	6.3	85	8.8	LS
	Below Wooley Valley Creek	MST022	7.6	0.50	83	NA	NA	NA	NA
	Below Dry Valley Creek, (1997 #20)	MST023	7.6	0.50	58	5.0	85	10	LS
	Above Dry Valley Creek, (1997 #19)	MST024	7.7	0.80	58	7.5	75	18	SL
	Below Wooley Range Ridge Creek	MST025	7.5	1.1	38	8.8	55	36	SL
	Above Wooley Range Ridge Creek	MST026	7.6	1.7	37	13	46	41	L
	Below Angus Creek	MST027	7.2	1.0	38	13	55	33	SL
	Above Diamond Creek Rd.	MST028	7.4	1.2	26	15	61	24	SL
	Below Spring Creek	MST229	7.4	1.1	43	10	56	34	SL
	Above Spring Creek	MST029	7.8	0.50	79	7.5	78	15	LS/SL
Meadow Creek	Above Blackfoot Reservoir	MST235	7.4	1.5	43	14	74	13	SL
Little Blackfoot River	Above Blackfoot Reservoir	MST234[a]	7.2	2.3	40	7.5	55	38	SL
	Below Long Valley Creek	MST043[a]	7.7	2.6	36	8.3	62	30	SL
	Immediately below Henry Mine (1997 #24)	MST044	7.6	2.3	46	20	46	34	L
	Above Henry Creek (1997 #23)	MST045	7.1	2.3	40	13	30	58	SiL
	Below Lone Pine Creek	MST046	7.5	2.7	30	18	40	43	L
	Above Lone Pine Creek	MST047	7.0	3.9	40	30	23	48	CL
	Below Reese Creek	MST048	8.1	2.5	41	15	55	30	SL
	Above Reese Creek	MST049	7.8	4.5	20	15	25	60	SiL
	Upstream of Henry cutoff road	MST254[a]	7.5	2.9	37	13	21	66	SiL
Lone Pine Creek	Above Little Blackfoot River	MST053	7.2	2.6	22	23	30	48	L
	Above spring-fed creek	MST054	7.4	3.7	33	25	15	60	SiL
	Below Strip Mine Creek	MST055	7.0	2.7	52	15	23	63	SiL
	Above West Fork Lone Pine Creek	MST058	8.3	12.3	12	NA	NA	NA	NA
	Spring Fed Tributary Above Lone Pine Creek	MST277[a]	7.0	8.7	42	34	21	45	CL
West Fork Lone Pine Creek	Above tributary to West Fork Lone Pine Creek	MST064	7.2	2.0	41	13	58	30	SL
	Above Lone Pine Creek	MST057	7.1	5.4	35	18	38	45	L
Tributary to West Fork Lone Pine Creek	Above West Fork Lone Pine Creek	MST276	7.3	1.4	66	5.0	83	13	LS
North Fork Lone Pine Creek	Northeast and above East Fork Lone Pine Creek	MST275	6.7	2.5	52	28	25	48	CL
Strip Mine Creek	Above Lone Pine Creek	MST062	7.1	2.8	37	10	24	66	SiL
	Below Henry Mine	MST063	6.8	3.3	44	26	14	60	SiL
Angus Creek	Above Blackfoot River	MST126[a]	7.8	0.97	74	15	62	23	SL
	Below No Name Creek	MST127	7.7	2.1	45	24	30	46	L
	Above No Name Creek and below Rasmussen Creek	MST132	7.3	2.5	38	25	23	53	SL
	Above Rasmussen Creek	MST128	7.4	3.1	40	24	29	48	L
	R-B&M-10, below Wooley Valley Mine	MST129	7.5	4.1	28	26	28	46	L
	R-B&M-12, below Upper Angus Creek Reservoir	MST130	7.4	6.4	6.4	35	18	48	SiCL
West Fork Rasmussen Creek	Above Rasmussen Creek	MST274	7.1	5.3	30	28	19	54	SiCL
Rasmussen Creek	Above Angus Creek	MST131	7.8	0.50	39	18	65	18	SL
	M-B&M-1, below Enoch Valley Mine (1997 #38)	MST133	7.2	3.2	32	29	36	35	CL
	Below West Pond Creek	MST134	7.4	2.9	65	28	25	48	CL
	Above West Pond Creek	MST135	7.3	7.6	5.4	NA	NA	NA	NA
	Headwaters near Enoch Valley Mine Shop Pond	MST136	7.6	1.7	32	28	28	45	CL
East Fork Rasmussen Creek	Above Rasmussen Creek	MST143	6.1	2.3	55	31	25	44	CL
West Pond Creek	Headwaters, below West Pond	MST144	6.5	1.3	62	23	19	59	SiL
Long Valley Creek	Below Ballard Mine, (ponded area)	MST050	7.8	3.9	53	19	19	63	SiL
Ballard Creek	Above Blackfoot River	MST066	6.2	6.5	35	20	34	46	L
	Headwaters	MST067	7.4	8.2	38	30	25	45	CL
Short Creek	Below Ballard Mine	MST069	7.4	4.8	38	21	26	53	SL
Wooley Valley Creek	Above Loadout Creek at road	MST272	7.6	4.0	56	29	19	53	SiCL
	Above ponding and below MST089	MST273	7.1	4.5	59	31	19	50	SiCL
	Below North Fork Wooley Valley Creek	MST089	7.0	11	37	28	30	43	CL
	Above North Fork Wooley Valley Creek	MST090	7.1	4.7	61	18	58	25	SL
North Fork Wooley Valley Creek	Above Wooley Valley Creek	MST092	6.5	14	21	35	33	33	CL
	Above Ballard Mine	MST093	6.6	2.8	58	28	26	46	CL
Spring-fed tributary #1 of North Fork Wooley Valley Creek	Below Ballard Mine	MST094	7.6	3.2	57	28	24	49	CL
Spring-fed tributary #2 of North Fork Wooley Valley Creek	Below Ballard Mine	MST095	7.1	3.9	52	28	26	46	CL
Tributary of North Fork Wooley Valley Creek	Below Ballard Mine	MST096	7.1	3.2	55	26	24	50	L/SiL
Caldwell Creek	Below Phosphoria Formation outcrop (1997 #62)	MST101	7.8	3.7	40	25	19	56	SiL
Stewart Creek	Above Diamond Creek	MST236	7.0	2.0	71	20	43	38	L
Timber Creek	Above Diamond Creek	MST237	7.8	2.3	53	15	36	49	L
Blackfoot Reservoir Delta	At Blackfoot River	MRV011	7.5	1.3	65	10	55	35	SL
	At Little Blackfoot River	MRV016	7.3	0.80	72	5.0	79	16	LS
	At Meadow Creek	MRV017	7.6	0.70	64	14	63	24	SL

May 2004 Sediment Data - pH, TOC & Texture									
Feature	**Station Name**	**Station**	**pH[b]**	**Total Organic Carbon (%)[b]**	**Solids (%)[b]**	**Clay (%)[b]**	**Sand (%)[b]**	**Silt (%)[b]**	**Texture Class[b]**
Springs	Hedin Spring	MSG001	7.1	3.0	54	20	29	51	SiL
	Garden Hose Spring	MSG003	7.5	4.7	47	30	23	48	CL
	Holmgren Spring	MSG004	7.0	6.0	31	29	21	50	CL
	Cattle Spring	MSG005	7.5	5.8	43	31	23	46	CL
	Ballard Mine Southeast Spring	MSG006	7.6	3.8	42	21	33	46	L
Ponds	Henry Mine Henry Pond	MSP014	7.4	2.9	56	15	53	33	SL
	Henry Mine Smith Pond	MSP015	7.9	1.0	77	24	44	33	L
	Henry Mine Center Henry Pond	MSP016[a]	7.4	2.6	62	15	45	40	L
	Henry Mine South Pit Pond	MSP055	7.5	6.2	56	26	24	50	L/SiL
	Ballard Mine Dredge Pond	MSP010	7.5	3.6	64	21	38	41	L
	Ballard Mine Upper Elk Pond	MSP011[a]	6.6	3.2	59	23	51	27	SCL
	Ballard Mine Lower Elk Pond	MSP012	7.4	4.3	69	20	46	34	L
	Ballard Mine Pit #4 Stock Pond	MSP059	6.8	3.1	61	51	11	38	C
	Ballard Mine Pit #6 Pond	MSP062	7.2	3.9	50	50	11	39	C
	Enoch Valley Mine South Pond	MSP017	7.4	1.4	79	14	63	24	SL
Ponds	Enoch Valley Mine Keyhole Pond	MSP018	7.3	7.1	27	NA	NA	NA	NA
	Enoch Valley Mine Bat Cave Pond	MSP019	6.2	2.1	70	23	35	43	L
	Enoch Valley Mine West Pond	MSP020	7.8	1.0	55	20	25	55	L
	Enoch Valley Mine Stock Pond	MSP021[a]	7.6	1.3	57	16	57	28	SL
	Enoch Valley Mine Tipple Pond	MSP022	7.7	1.9	44	36	19	45	SiCL
	Enoch Valley Mine Haul Road Pond	MSP023	7.6	2.5	22	40	28	33	C/CL
	Enoch Valley Mine Shop Pond	MSP031	6.5	2.6	21	24	21	55	SiL
Seeps	Enoch Valley Mine West Dump Seep	MDS025	7.2	3.7	15	28	33	40	CL
	Enoch Valley Mine South Dump Seep	MDS026	7.5	5.6	17	25	25	50	L/SiL
	Henry Mine South Pit Overburden Dump Seep (1997 #28)	MDS016	7.7	1.3	74	25	28	48	L
	Henry Mine South Pit Overburden Dump Limestone Drain (formerly FD002) (1997 #29)	MDS022	7.7	4.2	15	18	20	63	SiL
	Ballard Mine Pit #2 Upper Dump Seep	MDS030	7.5	4.6	25	23	25	53	SiL
	Ballard Mine Pit #2 Lower Dump Seep South	MDS031	7.6	2.2	49	23	48	30	L
	Ballard Mine Pit #2 Lower Dump Seep North	MDS032	8.0	7.2	25	16	45	39	L
	Ballard Mine Goat Seep	MDS033	7.4	1.6	58	21	49	30	L

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

C - Clay, CL - Clay Loam, L - Loam, LS - Loamy Sand, SCL - Sandy Clay Loam, SiCL - Silty Clay Loam, SiL - Silt Loam, SL - Sandy Loam

May 2004 Uncensored Validated Surface Water Data - Dissolved Metals (mg/L)														
Feature	**Station Name**	**Station ID**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Nickel**	**Flag**	**Selenium**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Blackfoot River	Above Blackfoot Reservoir	MST232	0.000010	0.00010 U	NA	NA	0.00080	0.0050 U	NA	NA	0.0011		0.0013	0.0020 U
	Below Woodall Mountain Creek	MST231[a]	-0.000013	0.00020 U	NA	NA	0.00063	0.0050 U	NA	NA	0.0010		0.00024	0.0040 U
	Below Ballard Creek	MST019	-0.000010	0.00020 U	NA	NA	0.00050	0.0050 U	NA	NA	0.00090		0.00093	0.0040 U
	Below State Land Creek	MST020	0	0.00010 U	NA	NA	0.0014	0.0050 U	NA	NA	0.00092		0.0011	0.0020 U
	Above State Land Creek	MST230[a]	0.0000033	0.00010 U	NA	NA	0.00067	0.0050 U	NA	NA	0.00091		0.0012	0.0020 U
	Below Trail Creek	MST021[a]	0.000017	0.00010 U	NA	NA	0.0013	0.0050 U	NA	NA	0.00093		0.00078	0.0020 U
	Below Wooley Valley Creek	MST022	0.000030	0.00010 U	NA	NA	0.0013	0.0050 U	NA	NA	0.00087		0.00071	0.0020 U
	Below Dry Valley Creek, (1997 #20)	MST023	0.000020	0.00010 U	NA	NA	0.0011	0.0050 U	NA	NA	0.0018		0.0060	0.0040 U
	Above Dry Valley Creek, (1997 #19)	MST024	0.000040	0.00010 U	NA	NA	0.0015	0.0050 U	NA	NA	0.00077		0.00096	0.0020 U
	Below Wooley Range Ridge Creek	MST025	0.000020	0.00010 U	NA	NA	0.00030	0.0050 U	NA	NA	0.00086		0.00066	0.0020 U
	Above Wooley Range Ridge Creek	MST026	0	0.00010 U	NA	NA	0.00070	0.0050 U	NA	NA	0.00087		0.0016	0.0020 U
	Below Angus Creek	MST027	0.000010	0.00020 U	NA	NA	0.00017	0.00040 U	NA	NA	0.00070		0.0010	0.0040 U
	Above Diamond Creek Rd.	MST028	0	0.00020 U	NA	NA	0.00033	0.00040 U	NA	NA	0.00070		0.00081	0.0040 U
	Below Spring Creek	MST229	-0.000010	0.00020 U	NA	NA	0.00040	0.00040 U	NA	NA	0.00070		0.0017	0.0040 U
	Above Spring Creek	MST029	0	0.00020 U	NA	NA	0.00014	0.00040 U	NA	NA	0.00080		0.00033	0.0040 U
Meadow Creek	Above Blackfoot Reservoir	MST235	-0.000010	0.00020 U	NA	NA	0.00050	0.0050 U	NA	NA	0.0022		0.00012	0.0040 U
Little Blackfoot River	Above Blackfoot Reservoir	MST234[a]	0.0000033	0.00020 U	NA	NA	0.0019	0.0050 U	NA	NA	0.00080		0.0040	0.0040 U
	Below Long Valley Creek	MST043[a]	0	0.00010 U	NA	NA	0.0031	0.0050 U	NA	NA	0.0012		0.0040	0.0040 U
	Immediately below Henry Mine (1997 #24)	MST044	0.000060	0.00010 U	NA	NA	0.00080	0.0050 U	NA	NA	0.0013		0.0018	0.0020 U
	Above Henry Creek (1997 #23)	MST045	0.000010	0.00010 U	NA	NA	0.00050	0.0050 U	NA	NA	0.0026		0.011	0.0040 U
	Below Lone Pine Creek	MST046	-0.000020	0.00010 U	NA	NA	0.00093	0.0050 U	NA	NA	0.00070		0.0022	0.010 U
	Above Lone Pine Creek	MST047	0.000040	0.00010 U	NA	NA	0.0014	0.0050 U	NA	NA	0.0047		0.0030	0.0040 U
	Below Reese Creek	MST048	0.000010	0.00010 U	NA	NA	0.00040	0.0050 U	NA	NA	0.00052		0.00033	0.0020 U
	Above Reese Creek	MST049	0.000010	0.00010 U	NA	NA	0.00050	0.0050 U	NA	NA	0.00065		0.00051	0.0020 U
	Upstream of Henry cutoff road	MST254[a]	0.0000033	0.00010 U	NA	NA	0.00080	0.0050 U	NA	NA	0.00055		0.00073	0.0020 U
Lone Pine Creek	Above Little Blackfoot River	MST053	0.000010	0.00010 U	NA	NA	0.00090	0.0050 U	NA	NA	0.00075		0.0012	0.0020 U
	Above spring-fed creek	MST054	0.000020	0.00010 U	NA	NA	0.00070	0.0050 U	NA	NA	0.0012		0.00058	0.0020 U
	Below Strip Mine Creek	MST055	0.000010	0.00010 U	NA	NA	0.00030	0.0050 U	NA	NA	0.00082		0.00067	0.0020 U
	Above West Fork Lone Pine Creek	MST058	0.000010	0.00010 U	0.000020	0.00010 U	0.00080	0.0050 U	-0.00045	0.0010 U	0.00072		0.00800	0.0040 U
	Spring Fed Tributary Above Lone Pine Creek	MST277[a]	0.0000067	0.00050 U	0.00020		0.0013	0.0050 U	-0.00088	0.0010 U	0.00029	0.00030 U	0.0016	0.010 U
West Fork Lone Pine Creek	Above tributary to West Fork Lone Pine Creek	MST064	0.000010	0.00010 U	0.000080	0.00010 U	0.00040	0.0050 U	0.0030		0.00065		0.00094	0.0020 U
	Above Lone Pine Creek	MST057	0.000020	0.00020 U	NA	NA	0.0014	0.0050 U	NA	NA	0.0011		0.0025	0.0040 U
Tributary to West Fork Lone Pine Creek	Above West Fork Lone Pine Creek	MST276	0.000020	0.00010 U	0.00020		0.0013	0.0050 U	0.0030		0.0011		0.0015	0.0020 U
North Fork Lone Pine Creek	Northeast and above East Fork Lone Pine Creek	MST275	0.000050	0.00020 U	0.00050		0.0053		-0.00030	0.0010 U	0.011		0.0011	0.0040 U
Strip Mine Creek	Above Lone Pine Creek	MST062	0.000010	0.00010 U	NA	NA	0.00040	0.0050 U	NA	NA	0.00116		0.0016	0.0020 U
	Below Henry Mine	MST063	0.000010	0.00010 U	NA	NA	0.0019	0.0050 U	NA	NA	0.0010		0.0011	0.0020 U
Angus Creek	Above Blackfoot River	MST126[a]	0.000027	0.00010 U	NA	NA	0.0010	0.0050 U	NA	NA	0.00072		0.00044	0.0020 U
	Below No Name Creek	MST127	0.000030	0.00010 U	NA	NA	0.00080	0.0050 U	NA	NA	0.00060		0.0020	0.0040 U
	Above No Name Creek and below Rasmussen Creek	MST132	0.000010	0.00010 U	NA	NA	0.00050	0.0050 U	NA	NA	0.00045	0.00048 U	0.00090	0.0020 U
	Above Rasmussen Creek	MST128	0.000010	0.00010 U	NA	NA	0.00070	0.0050 U	NA	NA	0.00043	0.00048 U	0.0012	0.0020 U
	R-B&M-10, below Wooley Valley Mine	MST129	0	0.00020 U	NA	NA	0.00070	0.0050 U	NA	NA	0.00050		0.00081	0.0040 U
	R-B&M-12, below Upper Angus Creek Reservoir	MST130	0.00010	0.00010 U	NA	NA	0.0011	0.0050 U	NA	NA	0.00097		0.0050	0.0040 U
West Fork Rasmussen Creek	Above Rasmussen Creek	MST274	0.000010	0.00010 U	0.00020		0.00020	0.0050 U	0.0030		0.00056		0.00081	0.0020 U
Rasmussen Creek	Above Angus Creek	MST131	0.000010	0.00010 U	NA	NA	0.00060	0.0050 U	NA	NA	0.0012		0.00062	0.0020 U
	M-B&M-1, below Enoch Valley Mine (1997 #38)	MST133	0.000070	0.00010 U	NA	NA	0.0015	0.0050 U	NA	NA	0.00095		0.0012	0.0020 U
	Below West Pond Creek	MST134	0.00010		NA	NA	0.0026	0.0050 U	NA	NA	0.0012		0.0020	0.0040 U
	Above West Pond Creek	MST135	0.000040	0.00010 U	NA	NA	0.00090	0.0050 U	NA	NA	0.0013		0.0016	0.0020 U
	Headwaters near Enoch Valley Mine Shop Pond	MST136	0.00010		0.00010		0.0031	0.0050 U	0.016		0.0022		0.0018	0.0020 U
East Fork Rasmussen Creek	Above Rasmussen Creek	MST143	0.00011	0.00020 U	NA	NA	0.0052		NA	NA	0.0012		0.0038	0.0040 U
West Pond Creek	Headwaters, below West Pond	MST144	0.00010		0.00020		0.0015	0.0050 U	0.18		0.00058		0.0040	0.0040 U
Long Valley Creek	Below Ballard Mine, (ponded area)	MST050	0.000010	0.00010 U	NA	NA	0.0019	0.0050 U	NA	NA	0.017		0.00016	0.0020 U
Ballard Creek	Above Blackfoot River	MST066	0.000060	0.00020 U	0.00040		0.0048	0.0050 U	0.0020		0.0044		0.012	0.0040 U
	Headwaters	MST067	0.0013		0.00060		0.013		0.010		0.0084		0.027	
Short Creek	Below Ballard Mine	MST069	0.00010		0.00070		0.025		0.64		0.0011		0.0090	0.015 U

May 2004 Uncensored Validated Surface Water Data - Dissolved Metals (mg/L)														
Feature	**Station Name**	**Station ID**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Nickel**	**Flag**	**Selenium**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Wooley Valley Creek	Above Loadout Creek at road	MST272	0.00011	0.00020 U	NA	NA	0.0012	0.0050 U	NA	NA	0.011		0.000090	0.0040 U
	Above ponding and below MST089	MST273	0.000030	0.00050 U	NA	NA	0.0040	0.0050 U	NA	NA	0.0046		-0.00020	0.010 U
	Below North Fork Wooley Valley Creek	MST089	0.000050	0.00020 U	0.00040		0.0038	0.0050 U	0.00031		0.0017		0.0028	0.0040 U
	Above North Fork Wooley Valley Creek	MST090	0.000020	0.00050 U	NA	NA	0.0010	0.0050 U	NA	NA	0.0029		0.00074	0.010 U
North Fork Wooley Valley Creek	Above Wooley Valley Creek	MST092	0.00010	0.00050 U	NA	NA	0.0090		NA	NA	0.0022		0.0019	0.010 U
	Above Ballard Mine	MST093	0.000070	0.00020 U	0.00016	0.00020 U	0.00080	0.0050 U	0.0010		0.0062		-0.00023	0.0040 U
Spring-fed tributary #1 of North Fork Wooley Valley Creek	Below Ballard Mine	MST094	0.000020	0.00020 U	NA	NA	0.00050	0.0050 U	0.021		0.0017		0.0012	0.0040 U
Spring-fed tributary #2 of North Fork Wooley Valley Creek	Below Ballard Mine	MST095	0.00020		NA	NA	0.0068		NA	NA	0.0023		0.013	0.0040 U
Tributary of North Fork Wooley Valley Creek	Below Ballard Mine	MST096	0.000050	0.00010 U	0.00020		0.00050	0.0050 U	0.016		0.00072		0.017	0.0040 U
Caldwell Creek	Below Phosphoria Formation outcrop (1997 #62)	MST101	0.000000	0.00010 U	NA	NA	0.00060	0.0050 U	NA	NA	0.00042	0.00048 U	0.00042	0.0020 U
Stewart Creek	Above Diamond Creek	MST236	0.000010	0.00010 U	0.00030		0.00015	0.00020 U	0.000020	0.0010 U	0.00023	0.00048 U	0.014	0.0040 U
Timber Creek	Above Diamond Creek	MST237	0.000020	0.00010 U	NA	NA	0.00020	0.0050 U	NA	NA	0.00034	0.00048 U	0.014	0.0040 U
Blackfoot Reservoir Delta	At Blackfoot River	MRV011	0	0.00010 U	NA	NA	0.00040	0.0050 U	NA	NA	0.0010		0.00053	0.0020 U
	At Little Blackfoot River	MRV016	0.000010	0.00010 U	NA	NA	0.00090	0.0050 U	NA	NA	0.00094		0.0040	0.0040 U
	At Meadow Creek	MRV017	-0.000010	0.00010 U	NA	NA	0.00080	0.0050 U	NA	NA	0.0023		0.0010	0.0040 U
Springs	Hedin Spring	MSG001	-0.000010	0.00010 U	0.00020		0.00050	0.0050 U	0.000060	0.0010 U	0.00020	0.00048 U	0.0013	0.0040 U
	Garden Hose Spring	MSG003	0.000010	0.00010 U	0.00090		0.0025	0.0050 U	0.39		0.0011		0.00084	0.0020 U
	Holmgren Spring	MSG004	0.000020	0.00010 U	0.00060		0.0023	0.0050 U	0.0090		0.0016		0.0030	0.0040 U
	Cattle Spring	MSG005	0.000010	0.00010 U	0.00050		0.00018	0.00020 U	0.0070		0.00024	0.00048 U	0.0030	0.0040 U
	Ballard Mine Southeast Spring	MSG006	0	0.00010 U	0.00080		0.00010	0.00020 U	0.21		0.00073		0.00075	0.0020 U
Ponds	Henry Mine Henry Pond	MSP014	0.00020		NA	NA	0.011		NA	NA	0.0028		0.0040	0.0040 U
	Henry Mine Smith Pond	MSP015	0.000050	0.00010 U	NA	NA	0.0035	0.0050 U	NA	NA	0.0026		0.0020	0.0040 U
	Henry Mine Center Henry Pond	MSP016[a]	0.000083	0.00010 U	NA	NA	0.0037	0.0050 U	NA	NA	0.0046		0.0014	0.0020 U
	Henry Mine South Pit Pond	MSP055	0.030		NA	NA	0.57		NA	NA	0.038		1.9	0.0040 U
	Ballard Mine Dredge Pond	MSP010	0.00080		NA	NA	0.025		NA	NA	0.016		0.0090	0.0040 U
	Ballard Mine Upper Elk Pond	MSP011[a]	0.0010		NA	NA	0.0099		NA	NA	0.013		0.011	0.0040 U
	Ballard Mine Lower Elk Pond	MSP012	0.0015		NA	NA	0.0081		NA	NA	0.027		0.010	0.0040 U
	Ballard Mine Pit #4 Stock Pond	MSP059	0.00040		NA	NA	0.0072		NA	NA	0.012		0.0070	0.0040 U
	Ballard Mine Pit #6 Pond	MSP062	0.0021		NA	NA	0.015		NA	NA	0.0062		0.020	0.0040 U
	Enoch Valley Mine South Pond	MSP017[a]	0.00030		NA	NA	0.015		NA	NA	0.0025		0.012	0.0040 U
	Enoch Valley Mine Keyhole Pond	MSP018	0.074		NA	NA	1.9		NA	NA	0.086		7.2	0.0040 U
	Enoch Valley Mine Bat Cave Pond	MSP019	0.00010		NA	NA	0.018		NA	NA	0.018		0.0060	0.0040 U
	Enoch Valley Mine West Pond	MSP020	0.0020		NA	NA	0.032		NA	NA	0.017		0.032	0.0040 U
	Enoch Valley Mine Stock Pond	MSP021	0.0098		NA	NA	0.12		NA	NA	0.036		0.40	0.0040 U
	Enoch Valley Mine Tipple Pond	MSP022	0.00010		NA	NA	0.0039	0.0050 U	NA	NA	0.0093		0.0011	0.0020 U
	Enoch Valley Mine Haul Road Pond	MSP023	0.00020		NA	NA	0.0058		NA	NA	0.056		0.0060	0.0040 U
	Enoch Valley Mine Shop Pond	MSP031	0.000080	0.00010 U	NA	NA	0.0020	0.0050 U	NA	NA	0.0041		0.0015	0.0020 U
Seeps	Enoch Valley Mine West Dump Seep	MDS025	0.00050		0.00020		0.19		0.013		0.0011		0.049	0.0040 U
	Enoch Valley Mine South Dump Seep	MDS026	0.0017		0.00040		0.014		0.32		0.0034		0.016	0.0040 U
	Henry Mine South Pit Overburden Dump Seep (1997 #28)	MDS016	0.00010	0.00020 U	0.00015	0.00020 U	0.013		-0.00034	0.0010 U	0.00040	0.00048 U	0.0080	0.0040 U
	Henry Mine South Pit Overburden Dump Limestone Drain (formerly FD002) (1997 #29)	MDS022	0.000010	0.00010 U	NA	NA	0.0057		NA	NA	0.00013	0.00048 U	0.0012	0.0020 U
	Ballard Mine Pit #2 Upper Dump Seep	MDS030	0.000040	0.00010 U	0.0015		0.0031	0.0050 U	0.42		0.00090		0.0030	0.0020 U
	Ballard Mine Pit #2 Lower Dump Seep South	MDS031	0.000060	0.00010 U	0.0011		0.0011	0.0050 U	0.45		0.00099		0.0018	0.0020 U
	Ballard Mine Pit #2 Lower Dump Seep North	MDS032	0.000030	0.00010 U	0.00050		0.0067		0.45		0.0011		0.0040	0.0020 U
	Ballard Mine Goat Seep	MDS033	0.00020		0.00070		0.011		1.4		0.0016		0.0070	0.0020 U

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

Data validation was performed in accordance with *MWH SOP-NW-18.1* and *USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.*

Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.

Data qualifier definitions are:

(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration, or the sample detection limit.

(J) - The associated value is an estimated quantity.

(R) - The data are unusable.

(UJ) - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

N/A - Not Applicable.

June 2004 Uncensored Validated Benthic Macroinvertebrate Analytical Data - Total Metals					
Feature	**Station Name**	**Station - HD Sampler**	**Selenium[c] (mg/kg dw)**	**Flag[c]**	**Solids[b] (%)**
Blackfoot River	Above Blackfoot Reservoir	MST232-1	13	J	
		MST232-2	4.6	13 UJ	
		MST232-3	17	J	
	Below Woodall Mountain Creek	MST231-1	46	J	
		MST231-2,3	8.3	J	
	Below Ballard Creek	MST019-1	4.2	J	
		MST019-2	7.5	J	
		MST019-3	10	J	
	Below State Land Creek	MST020-1,2	1.0	8.3 UJ	
		MST020-3	6.7	J	
	Above State Land Creek	MST230-1	19	J	16
		MST230-2	7.7	J	31
		MST230-3	11	J	
	Below Trail Creek	MST021-1	6.7	J	
		MST021-2	14	J	18
	Below Wooley Valley Creek	MST022-1,3	4.2	J	
		MST022-2	4.2	J	
	Below Dry Valley Creek, (1997 #20)	MST023-1	9.2	J	
		MST023-2,3	10	J	
	Above Dry Valley Creek, (1997 #19)	MST024-2	12	J	
		MST024-3	7.9	J	
	Below Wooley Range Ridge Creek	MST025-1	4.2	8.3 UJ	
		MST025-2	6.7	J	
		MST025-3	8.8	J	
	Above Wooley Range Ridge Creek	MST026-1	1.2	8.3 UJ	
		MST026-2	3.8	J	
	Below Angus Creek	MST027-1[a]	11	J	16
		MST027-2[a]	11	J	18
		MST027-3	14	J	
	Above Diamond Creek Rd.	MST028-1	10	J	
		MST028-2	7.1	J	
		MST028-3	11	J	
	Below Spring Creek	MST229-1[a]	19	J	
		MST229-2	10	J	
		MST229-3	7.9	J	29
	Above Spring Creek	MST029-1	1.3	J	54
		MST029-2	1.3	J	
		MST029-3	1.1	J	
Meadow Creek	Above Blackfoot Reservoir	MST235-1	-0.11	2.9 UJ	
		MST235-2	-17	21 UJ	
Little Blackfoot River	Above Blackfoot Reservoir	MST234-1	1.8	J	34
		MST234-2	1.8	J	28
		MST234-3[a]	-0.28	1.7 UJ	18
	Below Long Valley Creek	MST043-1,2	0.39	4.2 UJ	
		MST043-3	2.1	J	
	Immediately below Henry Mine (1997 #24)	MST044-1,2,3	-6.3	8.3 UJ	
	Above Henry Creek (1997 #23)	MST045-1,2	-4.1	8.3 UJ	
		MST045-3	-1.0	4.2 UJ	
	Below Lone Pine Creek	MST046-1	0.58	1.7 UJ	
		MST046-2	-7.5	13 UJ	
		MST046-3	0.11	1.7 UJ	
	Above Lone Pine Creek	MST047-1,2,3	-10	13 UJ	
	Below Reese Creek	MST048-1	-0.54	1.7 UJ	
		MST048-2	-1.7	2.9 UJ	
		MST048-3	-1.9	3.3 UJ	
	Above Reese Creek	MST049-1	0.78	1.3 UJ	
		MST049-2	0.48	1.3 UJ	23
		MST049-3	8.7	J	
	Upstream of Henry cutoff road	MST254-1[a]	-0.40	1.3 UJ	15
		MST254-2	-0.38	1.0 UJ	20
		MST254-3[a]	-0.75	1.5 UJ	20
Lone Pine Creek	Above Little Blackfoot River	MST053-1,2	-3.6	4.2 UJ	
		MST053-3	-3.5	4.2 UJ	
	Above spring-fed creek	MST054-1	0.15	3.8 UJ	
		MST054-2	-0.71	3.3 UJ	
		MST054-3	2.1	J	
	Below Strip Mine Creek	MST055-1	-18	2.9 UJ	
		MST055-2	-7.9	8.3 UJ	
		MST055-3	0.75	2.5 UJ	
	Above West Fork Lone Pine Creek	MST058-1,2,3	-42	42 UJ	
	Spring Fed Tributary Above Lone Pine Creek	MST277-1,2,3	-31	29 UJ	
West Fork Lone Pine Creek	Above tributary to West Fork Lone Pine Creek	MST064-1	5.0	J	
		MST064-2	1.7	3.3 UJ	
		MST064-3	2.1	J	

June 2004 Uncensored Validated Benthic Macroinvertebrate Analytical Data - Total Metals					
Feature	**Station Name**	**Station - HD Sampler**	**Selenium[c] (mg/kg dw)**	**Flag[c]**	**Solids[b] (%)**
West Fork Lone Pine Creek	Above Lone Pine Creek	MST057-2	5.9	J	17
		MST057-3[a]	6.5	J	
Tributary to West Fork Lone Pine Creek	Above West Fork Lone Pine Creek	MST276-1	3.0	J	20
		MST276-2	3.1	J	26
		MST276-3[a]	2.5	J	20
North Fork Lone Pine Creek	Northeast and above East Fork Lone Pine Creek	MST275-1,2,3	-5.0	4.2 UJ	
Strip Mine Creek	Above Lone Pine Creek	MST062-1	0.46	1.7 UJ	
		MST062-2	2.1	J	
		MST062-3	0.054	1.3 UJ	
	Below Henry Mine	MST063-1	13	J	19
		MST063-2	-5.8	21 UJ	
		MST063-3	12	J	19
Angus Creek	Above Blackfoot River	MST126-1,2	8.3	J	
	Below No Name Creek	MST127-1	5.3	J	19
		MST127-2	2.9	J	24
		MST127-3	1.9	J	
	Above No Name Creek and below Rasmussen Creek	MST132-1	0.45	1.5 UJ	
		MST132-2	1.3	J	40
		MST132-3	0.43	0.75 UJ	
	Above Rasmussen Creek	MST128-1	-12	13 UJ	
		MST128-2	-0.79	2.9 UJ	
		MST128-3	-2.4	3.3 UJ	
	R-B&M-10, below Wooley Valley Mine	MST129-1	18	J	
		MST129-2	4.2	J	
		MST129-3	17	J	
	R-B&M-12, below Upper Angus Creek Reservoir	MST130-1	13	J	
		MST130-2	4.6	J	
		MST130-3	7.5	J	
West Fork Rasmussen Creek	Above Rasmussen Creek	MST274-1	3.8	J	
		MST274-2,3	8.3	J	
Rasmussen Creek	Above Angus Creek	MST131-1	6.7	J	
		MST131-2	5.0	J	
		MST131-3	4.2	J	
	M-B&M-1, below Enoch Valley Mine (1997 #38)	MST133-1,2,3	-5.0	21 UJ	
	Below West Pond Creek	MST134-1,2,3	8.3	J	
	Above West Pond Creek	MST135-1,2,3	-100	170 UJ	
	Headwaters near Enoch Valley Mine Shop Pond	MST136-1,2,3	-50	83 UJ	
East Fork Rasmussen Creek	Above Rasmussen Creek	MST143-1,2,3	-200	170 UJ	
Long Valley Creek	Below Ballard Mine, (ponded area)	MST050-1,2	1.2	4.2 UJ	
		MST050-3	5.8	J	
Ballard Creek	Above Blackfoot River	MST066-1,2,3	-240	170 UJ	
Short Creek	Below Ballard Mine	MST069-1	500	J	
		MST069-2	180	J	
		MST069-3	260	J	
Wooley Valley Creek	Above Loadout Creek at road	MST272-1	0.75	2.1 UJ	
		MST272-2	-0.10	1.7 UJ	
		MST272-3	-29	29 UJ	
	Above ponding and below MST089	MST273-1,2,3	-190	170 UJ	
	Below North Fork Wooley Valley Creek	MST089-1,2,3	-14	21 UJ	
	Above North Fork Wooley Valley Creek	MST090-1,2	-1700	1300 UJ	
North Fork Wooley Valley Creek	Above Wooley Valley Creek	MST092-1,2,3	-0.35	8.3 UJ	
	Above Ballard Mine	MST093-1,2,3	-6.7	8.3 UJ	
Spring-fed tributary #1 of North Fork Wooley Valley Creek	Below Ballard Mine	MST094-1,2,3	17	J	
Caldwell Creek	Below Phosphoria Formation outcrop (1997 #62)	MST101-1,2,3	1.3	2.9 UJ	
Stewart Creek	Above Diamond Creek	MST236-1,2,3	-4.0	4.2 UJ	
Timber Creek	Above Diamond Creek	MST237-1	-2.7	4.2 UJ	
		MST237-2,3	-1.7	3.8 UJ	
Blackfoot Reservoir Delta	At Blackfoot River	MRV011-2	-38	42 UJ	
	At Little Blackfoot River	MRV016-1	1.9	2.4 UJ	
		MRV016-2	4.9	J	37
		MRV016-3	1.4	J	
Springs	Ballard Mine Southeast Spring	MSG006-1	100	J	
		MSG006-2	80	J	
		MSG006-3	79	J	
Seeps	Henry Mine South Pit Overburden Dump Limestone Drain (formerly FD002) (1997 #29)	MDS022-1,2,3	-83	130 UJ	

Notes:

[a] QA station, ACZ homogenized and prepared two replicates, one for ACZ analysis, one for UI analysis.

[b] Flags are not applicable, no data validation required. No result indicates insufficient amount of sample to perform analysis.

[c] dry weight (dw) result was calculated using a 3 tier decision matrix, 1) the sample and station specific percent solids result was utilized if available, 2) if the sample specific percent solids result was not available, the average of the station specific percent solids results was utilized, 3) if neither the sample nor the station specific percent solids results were available, then the average of all percent solids results was utilized.

1, 2, or 3 after the station ID corresponds to the hester-dendy sampler (HD) recovered at each station.

If required, HD's for a given station were composited to obtain sufficient weight for laboratory analyses.

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(R) - The data are unusable.

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N/A - Not Applicable.

June 2004 Benthic Macroinvertebrate Taxonomic Data

Feature	Station Name	Station	Taxa																Total Count				%EPT			
			Ephemeroptera				Plecoptera				Trichoptera				Other											
			1	2	3	C	1	2	3	C	1	2	3	C	1	2	3	C	1	2	3	C	1	2	3	C
Blackfoot River	Above Blackfoot Reservoir	MST232	31	7	47	85	0	0	0	0	20	7	18	45	229	101	225	555	280	115	290	685	18	12	22	19
	Below Woodall Mountain Creek	MST231	17	4	2	23	0	0	0	0	8	6	0	14	493	144	82	719	518	154	84	756	5	6	2	5
	Below Ballard Creek	MST019	26	17	3	46	0	0	0	0	12	64	12	88	91	95	71	257	129	176	86	391	29	46	17	34
	Below State Land Creek	MST020	5	0	2	7	0	0	0	0	10	4	26	40	198	11	148	357	213	15	176	404	7	27	16	12
	Above State Land Creek	MST230	0	6	3	9	0	0	0	0	23	16	19	58	111	133	287	531	134	155	309	598	17	14	7	11
	Below Trail Creek	MST021	0	1	-	1	0	0	-	0	2	0	-	2	89	22	-	111	91	23	-	114	2	4	-	3
	Below Wooley Valley Creek	MST022	6	0	5	11	1	0	0	1	7	5	26	38	58	10	33	101	72	15	64	151	19	33	48	33
	Below Dry Valley Creek, (1997 #20)	MST023	17	9	0	26	4	2	0	6	15	17	8	40	234	37	87	358	270	65	95	430	13	43	8	17
	Above Dry Valley Creek, (1997 #19)	MST024	-	0	1	1	-	0	0	0	-	18	106	124	-	18	18	36	-	36	125	161	-	50	86	78
	Below Wooley Range Ridge Creek	MST025	3	18	0	21	0	2	1	3	11	17	7	35	5	131	196	332	19	168	204	391	74	22	4	15
	Above Wooley Range Ridge Creek	MST026	4	5	-	9	1	4	-	5	2	19	-	21	19	12	-	31	26	40	-	66	27	70	-	53
	Below Angus Creek	MST027	0	0	0	0	0	0	0	0	1	0	1	2	38	84	246	368	39	84	247	370	3	0	<1	1
	Above Diamond Creek Rd.	MST028	0	14	1	15	0	0	0	0	1	7	0	8	27	207	60	294	28	228	61	317	4	9	2	7
	Below Spring Creek	MST229	2	4	0	6	1	0	0	1	1	0	2	3	69	67	88	224	73	71	90	234	5	6	2	4
	Above Spring Creek	MST029	1	0	0	1	2	0	0	2	0	0	1	1	139	26	195	360	142	26	196	364	2	0	1	1
Meadow Creek	Above Blackfoot Reservoir	MST235	3	0	-	3	0	0	-	0	1	4	-	5	174	255	-	429	178	259	-	437	2	2	-	2
Little Blackfoot River	Above Blackfoot Reservoir	MST234	0	0	2	2	0	0	0	0	7	5	15	27	194	262	501	957	201	267	518	986	3	2	3	3
	Below Long Valley Creek	MST043	2	3	1	6	0	0	0	0	0	1	0	1	36	47	47	130	38	51	48	137	5	8	2	5
	Immediately below Henry Mine (1997 #24)	MST044	0	0	0	0	0	0	0	0	0	0	0	0	56	137	154	347	56	137	154	347	0	0	0	0
	Above Henry Creek (1997 #23)	MST045	2	0	0	2	0	0	0	0	0	1	0	1	304	355	695	1354	306	356	695	1357	1	<1	0	<1
	Below Lone Pine Creek	MST046	0	2	1	3	0	0	0	0	0	0	0	0	26	30	29	85	26	32	30	88	0	6	3	3
	Above Lone Pine Creek	MST047	0	0	0	0	0	0	0	0	0	0	0	0	10	14	4	28	10	14	4	28	0	0	0	0
	Below Reese Creek	MST048	7	0	5	12	6	11	3	20	0	0	1	1	119	297	211	627	132	308	220	660	10	4	4	5
	Above Reese Creek	MST049	0	1	0	1	3	4	0	7	1	0	0	1	220	247	276	743	224	252	276	752	2	2	0	1
	Upstream of Henry cutoff road	MST254	7	0	0	7	0	0	0	0	5	3	1	9	364	612	812	1788	376	615	813	1804	3	<1	<1	1
Lone Pine Creek	Above Little Blackfoot River	MST053	1	1	0	2	0	0	0	0	0	0	0	0	18	27	41	86	19	28	41	88	5	4	0	2
	Above spring-fed creek	MST054	0	0	0	0	0	0	0	0	0	0	0	0	306	378	281	965	306	378	281	965	0	0	0	0
	Below Strip Mine Creek	MST055	0	0	0	0	0	0	0	0	0	0	0	0	532	126	181	839	532	126	181	839	0	0	0	0
	Above West Fork Lone Pine Creek	MST058	0	0	0	0	0	0	0	0	0	0	1	1	3	12	16	31	3	12	17	32	0	0	6	3
	Spring Fed Tributary Above Lone Pine Creek	MST277	0	0	0	0	0	0	0	0	0	0	0	0	24	56	33	113	24	56	33	113	0	0	0	0
West Fork Lone Pine Creek	Above tributary to West Fork Lone Pine Creek	MST064	2	0	0	2	4	1	0	5	1	1	0	2	233	130	269	632	240	132	269	641	3	2	0	1
	Above Lone Pine Creek	MST057	-	0	0	0	-	0	0	0	-	1	1	2	-	142	693	835	-	143	694	837	-	1	<1	<1
Tributary to West Fork Lone Pine Creek	Above West Fork Lone Pine Creek	MST276	0	0	0	0	1	0	0	1	1	0	1	2	420	313	352	1085	422	313	353	1088	<1	0	<1	<1
North Fork Lone Pine Creek	Northeast and above East Fork Lone Pine Creek	MST275	0	0	0	0	0	0	0	0	1	0	0	1	196	154	154	504	197	154	154	505	1	0	0	<1
Strip Mine Creek	Above Lone Pine Creek	MST062	1	1	1	3	0	0	0	0	1	0	0	1	351	458	261	1070	353	459	262	1074	1	<1	<1	<1
	Below Henry Mine	MST063	0	0	0	0	0	0	0	0	0	1	0	1	738	203	53	994	738	204	53	995	0	<1	0	<1
Angus Creek	Above Blackfoot River	MST126	10	8	-	18	0	0	-	0	0	0	-	0	59	133	-	192	69	141	-	210	14	6	-	9
	Below No Name Creek	MST127	0	0	0	0	0	0	0	0	0	0	0	0	19	43	17	79	19	43	17	79	0	0	0	0
	Above No Name Creek and below Rasmussen Creek	MST132	3	2	5	10	0	0	1	1	0	10	0	10	195	276	267	738	198	288	273	759	2	4	2	3
	Above Rasmussen Creek	MST128	8	11	12	31	0	0	0	0	0	0	1	1	84	41	46	171	92	52	59	203	9	21	22	16
	R-B&M-10, below Wooley Valley Mine	MST129	0	0	2	2	0	0	0	0	2	3	1	6	142	316	276	734	144	319	279	742	1	1	1	1
	R-B&M-12, below Upper Angus Creek Reservoir	MST130	0	30	7	37	0	0	0	0	0	10	4	14	126	299	147	572	126	339	158	623	0	12	7	8
West Fork Rasmussen Creek	Above Rasmussen Creek	MST274	0	0	1	1	0	0	0	0	0	0	0	0	27	66	10	103	27	66	11	104	0	0	9	1

June 2004 Benthic Macroinvertebrate Taxonomic Data

Feature	Station Name	Station	Taxa																Total Count				%EPT			
			Ephemeroptera				Plecoptera				Trichoptera				Other											
			1	2	3	C	1	2	3	C	1	2	3	C	1	2	3	C	1	2	3	C	1	2	3	C
Rasmussen Creek	Above Angus Creek	MST131	0	1	1	2	0	0	1	1	1	0	0	1	260	189	1135	1584	261	190	1137	1588	<1	1	<1	<1
	M-B&M-1, below Enoch Valley Mine (1997 #38)	MST133	0	0	0	0	0	0	0	0	0	1	0	1	7	13	18	38	7	14	18	39	0	7	0	3
	Below West Pond Creek	MST134	0	0	0	0	0	0	0	0	0	0	2	2	41	36	69	146	41	36	71	148	0	0	3	1
	Above West Pond Creek	MST135	0	0	0	0	0	0	0	0	0	0	0	0	4	5	11	20	4	5	11	20	0	0	0	0
	Headwaters near Enoch Valley Mine Shop Pond	MST136	0	0	0	0	0	0	0	0	0	1	0	1	8	0	3	11	8	1	3	12	0	100	0	8
East Fork Rasmussen Creek	Above Rasmussen Creek	MST143	0	0	0	0	0	0	1	1	0	0	0	0	13	12	45	70	13	12	46	71	0	0	2	1
Long Valley Creek	Below Ballard Mine, (ponded area)	MST050	0	0	0	0	0	0	0	0	0	0	2	2	47	32	25	104	47	32	27	106	0	0	7	2
Ballard Creek	Above Blackfoot River	MST066	0	0	0	0	0	0	0	0	0	0	0	0	7	0	11	18	7	0	11	18	0	0	0	0
Short Creek	Below Ballard Mine	MST069	0	0	0	0	0	0	0	0	0	0	0	0	1293	291	36	1620	1293	291	36	1620	0	0	0	0
Wooley Valley Creek	Above Loadout Creek at road	MST272	0	0	0	0	0	0	0	0	0	0	0	0	20	97	10	127	20	97	10	127	0	0	0	0
	Above ponding and below MST089	MST273	0	0	0	0	0	0	0	0	0	0	0	0	1	4	9	14	1	4	9	14	0	0	0	0
	Below North Fork Wooley Valley Creek	MST089	0	0	0	0	0	0	0	0	0	2	0	2	31	34	26	91	31	36	26	93	0	6	0	2
	Above North Fork Wooley Valley Creek	MST090	0	0	-	0	0	0	-	0	0	0	-	0	0	5	-	5	0	5	-	5	0	0	-	0
North Fork Wooley Valley Creek	Above Wooley Valley Creek	MST092	0	0	0	0	0	0	0	0	0	0	0	0	21	15	15	51	21	15	15	51	0	0	0	0
	Above Ballard Mine	MST093	0	0	0	0	0	0	0	0	0	0	0	0	9	22	16	47	9	22	16	47	0	0	0	0
Spring-fed tributary #1 of North Fork	Below Ballard Mine	MST094	0	0	0	0	0	0	0	0	0	0	0	0	1	2	44	47	1	2	44	47	0	0	0	0
Caldwell Creek	Below Phosphoria Formation outcrop (1997 #62)	MST101	0	0	0	0	0	0	0	0	0	0	0	0	60	169	43	272	60	169	43	272	0	0	0	0
Stewart Creek	Above Diamond Creek	MST236	35	0	15	50	0	0	0	0	10	3	13	26	72	37	67	176	117	40	95	252	38	8	29	30
Timber Creek	Above Diamond Creek	MST237	39	21	2	62	8	3	3	14	1	1	1	3	15	9	18	42	63	34	24	121	76	74	25	65
Blackfoot Reservoir Delta	At Blackfoot River	MRV011	-	2	-	2	-	0	-	0	-	1	-	1	-	28	-	28	-	31	-	31	-	10	-	10
	At Little Blackfoot River	MRV016	0	0	6	6	0	0	0	0	0	11	0	11	72	403	396	871	72	414	402	888	0	3	1	2
Springs	Ballard Mine Southeast Spring	MSG006	0	0	0	0	0	0	0	0	0	0	0	0	38	41	14	93	38	41	14	93	0	0	0	0
Seeps	Henry Mine South Pit Overburden Dump Limestone Drain (formerly FD002) (1997 #29)	MDS022	0	0	0	0	0	0	0	0	0	0	0	0	10	14	3	27	10	14	3	27	0	0	0	0

Notes:

1, 2, 3: Denotes Hester-Dendy (HD) Sampler 1, Sampler 2, and Sampler 3 at each given station.

(-), dash: indicates there is no result (count) for that particular HD sampler (either HD1, HD2, or HD3) because the particular HD sampler was either not retrievable or because the station was dry at that particular HD sampler location.

C: Denotes composite (total of HD1, HD2, and HD3).

July 2004 Uncensored Validated Agronomic Soil Data - Metals, Nitrogens, Phosphorus & Ions (mg/kg dw)											
Station Name	**Station**	**Cadmium**	**Flag**	**Calcium**	**Flag**	**Chromium**	**Flag**	**Copper**	**Flag**	**Iron**	**Flag**
Ballard Mine Pit #2	MMP036	16		2.0		0.70		9.4		9.9	
Ballard Mine Pit #1 Overburden Dump #1	MWD080[a]	20		3.4		1.6		12		40	
Ballard Mine Pit #3 Overburden Dump	MWD082[a]	20		2.7		0.42		11		26	
Ballard Mine Pits #5 and #6 Overburden Dump	MWD084	28		1.2		0.04	0.50 U	13		29	
Station Name	**Station**	**Magnesium**	**Flag**	**Manganese**	**Flag**	**Molybdenum**	**Flag**	**Nickel**	**Flag**	**Nitrate-N**	**Flag**
Ballard Mine Pit #2	MMP036	0.30		2.6		0.0	0.50 U	4.8		1.3	
Ballard Mine Pit #1 Overburden Dump #1	MWD080[a]	0.79		1.8		0.021	0.50 U	19		1.7	
Ballard Mine Pit #3 Overburden Dump	MWD082[a]	0.61		2.2		0.017	0.50 U	13		0.90	
Ballard Mine Pits #5 and #6 Overburden Dump	MWD084	0.40		2.4		0.0050	0.50 U	21		1.7	
Station Name	**Station**	**Nitrite-N**	**Flag**	**N-Ammonia**	**Flag**	**Nickel**	**Flag**	**Phosphorus**	**Flag**	**Potassium**	**Flag**
Ballard Mine Pit #2	MMP036	0.064	0.10 U	2.0	18 U	4.8		58	J	0.16	
Ballard Mine Pit #1 Overburden Dump #1	MWD080[a]	0.073	0.10 U	4.3	18 U	19		62	J	0.26	
Ballard Mine Pit #3 Overburden Dump	MWD082[a]	0.061	0.10 U	8.0	18 U	13		100	J	0.24	
Ballard Mine Pits #5 and #6 Overburden Dump	MWD084	0.031	0.10 U	8.0	18 U	21		41	J	0.51	
Station Name	**Station**	**Selenium**	**Flag**	**Sodium**	**Flag**	**Sulfate**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Ballard Mine Pit #2	MMP036	0.0077	0.010 U	0.20	3.0 U	4.1		1.8		39	
Ballard Mine Pit #1 Overburden Dump #1	MWD080[a]	0.68		0.56	3.0 U	6.9		7.4		160	
Ballard Mine Pit #3 Overburden Dump	MWD082[a]	0.50		0.24	3.0 U	4.2		5.7		120	
Ballard Mine Pits #5 and #6 Overburden Dump	MWD084	0.12		0.10	3.0 U	10		3.2		120	

July 2004 Uncensored Validated Agronomic Soils Data[b] - CEC, Conductivity, Na-Absorption Ratio, TOC & Texture											
Station Name	**Station**	**Cation Exchange Capacity (meq/100g)**	**Conductivity (mmhos/cm)**	**pH**	**Sodium Absorption Ratio**	**Solids (%)**	**Total Organic Carbon (%)**	**Clay (%)**	**Sand (%)**	**Silt (%)**	**Texture Class**
Ballard Mine Pit #2	MMP036	4.6	0.15	7.2	0.19	94	1.8	18	46	36	L
Ballard Mine Pit #1 Overburden Dump #1	MWD080[a]	6.9	0.31	7.4	0.32	92	3.4	19	42	39	L
Ballard Mine Pit #3 Overburden Dump	MWD082[a]	4.9	0.34	7.4	0.19	94	3.6	16	51	33	SL
Ballard Mine Pits #5 and #6 Overburden Dump	MWD084	8.6	0.21	6.5	0.11	91	3.5	23	33	45	L

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

Soluble results include Ca, K, Mg, Na & Sulfate. Extractable results include Cd, Cr, Cu, Fe, Mn, Mo, Ni, V, Se, Zn, Nitrate as N, Nitrite as N, Nitrogen-Ammonia, and phosphorous.

Data validation was performed in accordance with *MWH SOP-NW-18.1* and *USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.*

Texture classes: L - Loam, and SL - Sandy Loam.

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(J) - The associated value is an estimated quantity.

(R) - The data are unusable.

(UJ) - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

July 2004 Total and Hexavalent Chromium in Sediment, Riparian Soil, and Waste Rock Soil Data (mg/kg dw)[a]						
Station Name	**Station**	**Matrix, Feature**	**Total Chromium (EDL, 1.5)**	**Flag**	**Hexavalent Chromium (EDL, 0.20)**	**Flag**
Enoch Valley Mine Bat Cave Pond	MSP019	Sediment, Pond	450	J	-8.1	0.20 UJ
Henry Mine South Pit Pond	MSP055	Sediment, Pond	940	J	-4.1	0.20 UJ
Ballard Mine Pit #4 Stock Pond	MSP059	Sediment, Pond	870	J	-14	0.20 UJ
Ballard Creek, headwaters	MST067	Sediment, Stream	320	J	-35	0.20 UJ
Wooley Valley Creek, below North Fork Wooley Valley Creek	MST089	Sediment, Stream	110	J	-15	0.20 UJ
Angus Creek, below Angus Creek Reservoir	MST130	Sediment, Stream	100	J	-9.2	0.20 UJ
Ballard Creek, headwaters	MST067	Riparian Soil, Stream	120	J	-38	0.20 UJ
Wooley Valley Creek, below North Fork Wooley Valley Creek	MST089	Riparian Soil, Stream	48	J	-38	0.20 UJ
Angus Creek, below Angus Creek Reservoir	MST130	Riparian Soil, Stream	95	J	-9.3	0.20 UJ
Ballard Mine Pit #1 Overburden Dump #1	MWD080	Waste Rock Soil, WRD	900	J	7.3	J
Henry Mine Pit #1 Overburden Dump	MWD086	Waste Rock Soil, WRD	990	J	-6.3	0.20 UJ
Enoch Valley Mine South Dump	MWD091	Waste Rock Soil, WRD	1100	J	17	J

Notes:

[a] All samples were analyzed at the University of Idaho - Analytical Sciences Laboratory, Holm Research Center

WRD - Waste Rock Dump

Data validation was performed in accordance with MWH SOP-NW-18.1 and USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.

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(J) - The associated value is an estimated quantity.

(R) - The data are unusable.

(UJ) - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

N/A - Not Applicable.

July 2004 Uncensored Validated Mass-Wasting Soil Data				
Station Name	**Station**	**Solids[b] (%)**	**Selenium (mg/kg dw)**	**Flag**
Ballard Mine Pit #3 Overburden Dump	MWD082-01	94	70	J
	MWD082-02	93	54	J
	MWD082-03	92	65	J
	MWD082-04	94	58	J
	MWD082-05	89	49	J
	MWD082-06	84	59	J
	MWD082-07	89	51	J
	MWD082-08	85	28	J
	MWD082-09	90	20	J
	MWD082-10	84	21	J
	MWD082-11	82	16	J
	MWD082-12	84	11	J
	MWD082-13	86	5.4	J
	MWD082-14[a]	95	62	J
	MWD082-15	95	54	J
	MWD082-16	94	53	J
	MWD082-17	93	71	J
	MWD082-18	90	65	J
	MWD082-19	86	53	J
	MWD082-20	93	42	J
	MWD082-21	85	14	J
	MWD082-22	84	11	J
	MWD082-23	85	8.9	J
	MWD082-24	78	8.5	J
	MWD082-25	83	5.9	J
	MWD082-26	87	4.8	J
Henry Mine North Pit Overburden Dump	MWD085-01	97	40	J
	MWD085-02	96	38	J
	MWD085-03	97	53	J
	MWD085-04	94	28	J
	MWD085-05	94	0.21	0.50 UJ
	MWD085-06	97	-0.046	0.50 UJ
	MWD085-07	97	-0.046	0.50 UJ
	MWD085-08	96	0.43	0.50 UJ
	MWD085-09	96	0.34	0.50 UJ
	MWD085-10	96	0.31	0.50 UJ
	MWD085-11	97	0.29	0.50 UJ
	MWD085-12	96	0.29	0.50 UJ
	MWD085-13	97	0.50	0.50 UJ
	MWD085-14	96	41	J
	MWD085-15	97	52	J
	MWD085-16	97	41	J
	MWD085-17	97	42	J
	MWD085-18	95	1.5	J
	MWD085-19	96	0.13	0.50 UJ
	MWD085-20	96	0.046	0.50 UJ
	MWD085-21	97	-0.0051	0.50 UJ
	MWD085-22	95	0.026	0.50 UJ
	MWD085-23	95	0.35	0.50 UJ
	MWD085-24	95	0.026	0.50 UJ
	MWD085-25	97	0.066	0.50 UJ
	MWD085-26[a]	95	0.45	0.50 UJ
Henry Mine Center Pit #1 Overburden Dump	MWD086-01[a]	96	9.2	J
	MWD086-02	98	13	J
	MWD086-03	93	11	J
	MWD086-04	91	0.90	J
	MWD086-05	92	0.37	0.50 UJ
	MWD086-06	96	0.27	0.50 UJ
	MWD086-07	94	0.39	0.50 UJ
	MWD086-08	93	0.5	0.50 UJ
	MWD086-09	93	0.60	J
	MWD086-10	94	0.15	0.50 UJ
	MWD086-11	91	0.46	0.50 UJ
	MWD086-12	90	0.31	0.50 UJ
	MWD086-13	90	0.22	0.50 UJ
	MWD086-14	87	12	J
	MWD086-15	98	14	J
	MWD086-16	82	13	J
	MWD086-17	92	2.3	J
	MWD086-18	92	0.80	J
	MWD086-19	92	0.29	0.50 UJ
	MWD086-20	91	0.48	0.50 UJ
	MWD086-21	94	0.45	0.50 UJ
	MWD086-22	91	0.70	J
	MWD086-23	91	-0.087	0.50 UJ
	MWD086-24	94	-0.031	0.50 UJ
	MWD086-25	92	0.11	0.50 UJ
	MWD086-26	90	0.49	0.50 UJ

July 2004 Uncensored Validated Mass-Wasting Soil Data				
Station Name	**Station**	**Solids[b] (%)**	**Selenium (mg/kg dw)**	**Flag**
Enoch Valley Mine Waste Dump Location 1	MWD091-01	94	19	J
	MWD091-02	93	17	J
	MWD091-03	92	140	J
	MWD091-04	92	0.90	J
	MWD091-05	91	0.11	0.50 UJ
	MWD091-06	91	0.48	0.50 UJ
	MWD091-07	90	0.061	0.50 UJ
	MWD091-08	93	0.020	0.50 UJ
	MWD091-09	91	0.031	0.50 UJ
	MWD091-10	90	0.062	0.50 UJ
	MWD091-11	88	0	0.50 UJ
	MWD091-12	90	1.2	J
	MWD091-13	91	0.80	J
	MWD091-14[a]	94	4.0	J
	MWD091-15	93	23	J
	MWD091-16	92	110	J
	MWD091-17	91	1.2	J
	MWD091-18	91	0.80	J
	MWD091-19	92	0.43	0.50 UJ
	MWD091-20	91	0.50	0.50 UJ
	MWD091-21	90	0.70	J
	MWD091-22	88	-0.16	0.50 UJ
	MWD091-23	93	-0.21	0.50 UJ
	MWD091-24	90	2.2	J
	MWD091-25	91	3.3	J
	MWD091-26	91	-0.2	0.50 UJ
Enoch Valley Mine Waste Dump Location 2	MWD091-27	94	4.9	J
	MWD091-28	93	4.2	J
	MWD091-29	96	2.8	J
	MWD091-30	94	7.7	J
	MWD091-31	93	2.4	J
	MWD091-32	92	3.2	J
	MWD091-33	90	4.1	J
	MWD091-34	94	3.6	J
	MWD091-35	90	2.6	J
	MWD091-36	95	2.2	J
	MWD091-37	88	2.3	J
	MWD091-38	83	2.4	J
	MWD091-39	89	3.5	J
	MWD091-40	96	9.7	J
	MWD091-41	95	5.2	J
	MWD091-42	96	-0.44	0.50 UJ
	MWD091-43	94	-0.58	0.50 UJ
	MWD091-44	92	5.7	J
	MWD091-45	91	3.4	J
	MWD091-46	92	2.7	J
	MWD091-47	92	5.7	J
	MWD091-48	87	7.0	J
	MWD091-49	88	4.0	J
	MWD091-50	89	3.6	J
	MWD091-51	91	3.1	J
	MWD091-52[a]	91	2.5	J

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

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N/A - Not Applicable.

July 2004 Uncensored Validated Mass-Wasting Vegetation Data				
Station Name	**Station**	**Moisture Content[b] (%)**	**Selenium (mg/kg dw)**	**Flag**
Ballard Mine Pit #3 Overburden Dump	MWD082-01	61	53	
	MWD082-02	60	67	
	MWD082-03	61	54	
	MWD082-04	65	46	
	MWD082-05	65	50	
	MWD082-06	61	25	
	MWD082-07	67	17	
	MWD082-08	61	8.7	
	MWD082-09	74	17	
	MWD082-10	74	8.0	
	MWD082-11	73	7.7	
	MWD082-12	77	2.7	
	MWD082-13	74	3.8	
	MWD082-14[a]	56	58	
	MWD082-15	60	68	
	MWD082-16	60	46	
	MWD082-17	60	57	
	MWD082-18	64	49	
	MWD082-19	69	35	
	MWD082-20	68	17	
	MWD082-21	66	8.3	
	MWD082-22	72	8.4	
	MWD082-23	72	5.9	
	MWD082-24	75	3.2	
	MWD082-25	74	1.7	
	MWD082-26	75	2.6	
Henry Mine North Pit Overburden Dump	MWD085-01	61	-0.042	0.50 U
	MWD085-02	67	1.7	
	MWD085-03	62	-0.25	0.50 U
	MWD085-04	59	-0.49	0.50 U
	MWD085-05	49	-0.48	0.50 U
	MWD085-06	45	-0.44	0.50 U
	MWD085-07	55	-0.43	0.50 U
	MWD085-08	47	-0.026	0.50 U
	MWD085-09	45	-0.042	0.50 U
	MWD085-10	42	-0.031	0.50 U
	MWD085-11	46	-0.036	0.50 U
	MWD085-12	42	-0.063	0.50 U
	MWD085-13	37	-0.15	0.50 U
	MWD085-14	67	-0.26	0.50 U
	MWD085-15	69	0.70	
	MWD085-16	70	1.9	
	MWD085-17	75	-0.33	0.60 U
	MWD085-18	55	-0.49	0.50 U
	MWD085-19	52	-0.42	0.50 U
	MWD085-20	54	-0.40	0.50 U
	MWD085-21	51	-0.43	0.50 U
	MWD085-22	51	-0.50	0.50 U
	MWD085-24	42	-0.36	0.50 U
	MWD085-25	57	-0.34	0.50 U
	MWD085-26[a]	41	0.0034	0.50 U
Henry Mine Center Pit #1 Overburden Dump	MWD086-01[a]	58	0.56	
	MWD086-02	70	0.41	0.50 U
	MWD086-03	71	0.19	0.50 U
	MWD086-04	67	0.084	0.50 U
	MWD086-05	69	-0.032	0.50 U
	MWD086-06	68	0.032	0.50 U
	MWD086-07	65	-0.042	0.50 U
	MWD086-08	67	0.047	0.50 U
	MWD086-09	69	0.11	0.50 U
	MWD086-10	63	-0.37	0.50 U
	MWD086-11	69	-0.40	0.50 U
	MWD086-12	67	-0.41	0.50 U
	MWD086-13	68	-0.44	0.50 U
	MWD086-14	59	0.90	
	MWD086-15	59	0.35	0.50 U
	MWD086-16	63	0.20	0.50 U
	MWD086-17	68	0.18	0.50 U
	MWD086-18	66	0.15	0.50 U
	MWD086-19	64	0.011	0.50 U
	MWD086-20	63	0	0.50 U
	MWD086-21	67	0.016	0.50 U
	MWD086-22	69	0.090	0.50 U
	MWD086-23	68	-0.32	0.50 U
	MWD086-24	68	-0.46	0.50 U
	MWD086-25	67	-0.33	0.50 U
	MWD086-26	65	-0.47	0.50 U

July 2004 Uncensored Validated Mass-Wasting Vegetation Data				
Station Name	**Station**	**Moisture Content[b] (%)**	**Selenium (mg/kg dw)**	**Flag**
Enoch Valley Mine Waste Dump Location 1	MWD091-01	65	16	
	MWD091-02	63	7.1	
	MWD091-03	67	3.3	
	MWD091-04	66	-0.049	0.50 U
	MWD091-05	65	-0.0054	0.50 U
	MWD091-06	66	-0.0054	0.50 U
	MWD091-07	68	0.12	0.50 U
	MWD091-08	63	-0.038	0.50 U
	MWD091-09	67	-0.32	0.50 U
	MWD091-10	66	-0.46	0.50 U
	MWD091-11	66	0.16	0.50 U
	MWD091-12	78	-0.18	0.50 U
	MWD091-13	66	-0.21	0.50 U
	MWD091-14[a]	64	10	
	MWD091-15	61	10	
	MWD091-16	66	7.0	
	MWD091-17	72	-0.14	0.50 U
	MWD091-19	65	-0.25	0.50 U
	MWD091-20	61	-0.23	0.50 U
	MWD091-21	65	-0.23	0.50 U
	MWD091-22	66	0.13	0.50 U
	MWD091-23	62	-0.087	0.50 U
	MWD091-24	66	-0.065	0.50 U
	MWD091-25	71	-0.13	0.50 U
	MWD091-26	77	-0.16	0.50 U
Enoch Valley Mine Waste Dump Location 2	MWD091-27	77	0.17	0.50 U
	MWD091-28	58	0.016	0.50 U
	MWD091-29	67	-0.11	0.50 U
	MWD091-30	54	0.24	0.50 U
	MWD091-31	73	0.17	0.50 U
	MWD091-32	63	0.011	0.50 U
	MWD091-33	67	0.27	0.50 U
	MWD091-34	60	0.027	0.50 U
	MWD091-35	69	0.38	0.50 U
	MWD091-36	71	0.12	0.50 U
	MWD091-37	73	0.092	0.50 U
	MWD091-38	59	0.13	0.50 U
	MWD091-39	68	0.22	0.50 U
	MWD091-40	58	0.12	0.50 U
	MWD091-41	64	0.096	0.50 U
	MWD091-42	70	0.30	0.50 U
	MWD091-43	65	0.10	0.50 U
	MWD091-44	70	0.51	0.60 U
	MWD091-45	70	0.12	0.50 U
	MWD091-46	72	0.34	0.50 U
	MWD091-47	60	0.48	0.50 U
	MWD091-48	74	0.41	0.50 U
	MWD091-49	69	0.48	0.50 U
	MWD091-50	61	-0.20	0.50 U
	MWD091-51	59	-0.18	0.50 U
	MWD091-52[a]	59	-0.23	0.50 U

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

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N/A - Not Applicable.

September 2004 Uncensored Validated Groundwater - Total Metals (mg/L)													
Feature	**Station Name**	**Station**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Nickel**	**Flag**	**Selenium**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Agricultural Well	Godfrey Field Well North	MAW006	0.00016	0.00020 U	0.0031		0.0049		-0.00020	0.0010 U	0.011		0.036	
Piezometer	EVM Temporary Piezometer at MDS025	MTP001	0.026		0.028		0.24		2.0	0.0010 U	0.28		0.85	
Lone Pine Creek	Above West Fork Lone Pine Creek	MST058	NA		NA		NA		-0.00048	0.0010 U	NA		NA	
West Fork Lone Pine Creek	Above tributary to West Fork Lone Pine Creek	MST064[a]	NA		NA		NA		0.0020		NA		NA	
Tributary to West Fork Lone Pine Creek	Above West Fork Lone Pine Creek	MST276	NA		NA		NA		0.013		NA		NA	
North Fork Lone Pine Creek	Northeast and above East Fork Lone Pine Creek	MST275	NA		NA		NA		0.0080		NA		NA	
West Fork Rasmussen Creek	Above Rasmussen Creek	MST274	NA		NA		NA		-0.00069		NA		NA	
Short Creek	Below Ballard Mine	MST069	NA		NA		NA		0.48		NA		NA	
Tributary of North Fork Wooley Valley Creek	Below Ballard Mine	MST096	NA		NA		NA		0.027		NA		NA	
Springs	Hedin Spring	MSG001[a]	NA		NA		NA		0.00026	0.0010 U	NA		NA	
	Garden Hose Spring	MSG003	NA		NA		NA		0.44		NA		NA	
	Holmgren Spring	MSG004	NA		NA		NA		0.031		NA		NA	
	Cattle Spring	MSG005[a]	NA		NA		NA		0.0040		NA		NA	
	Ballard Mine Southeast Spring	MSG006	NA		NA		NA		0.28		NA		NA	
Seeps	Enoch Valley Mine South Dump Seep	MDS026	NA		NA		NA		0.0060		NA		NA	
	Henry Mine South Pit Overburden Dump Limestone Drain (formerly FD002) (1997 #29)	MDS022	NA		NA		NA		-0.00034	0.0010 U	NA		NA	
	Ballard Mine Pit #2 Upper Dump Seep	MDS030	NA		NA		NA		0.57		NA		NA	
	Ballard Mine Pit #2 Lower Dump Seep South	MDS031	NA		NA		NA		0.38		NA		NA	
	Ballard Mine Pit #2 Lower Dump Seep North	MDS032	NA		NA		NA		0.29		NA		NA	

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

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N/A - Not Applicable.

September 2004 Uncensored Validated Groundwater - Dissolved Metals (mg/L)											
Feature	**Station Name**	**Station**	**Flag**	**Nickel**	**Flag**	**Selenium**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Agricultural Well	Godfrey Field Well North	MAW006	0.0015 U	0.0023		-0.00049	0.0010 U	0.0081		0.022	
Domestic Well	EVM Shop Well	MPW019	0.00010 U	0.0045		0.00094	0.0010 U	0.00018	0.00079 U	0.012	0.015 U
Monitoring Well	Henry North Pit Monitoring Well South	MMW003	0.00010 U	0.0098		0.058		0.00071	0.00079 U	0.010	0.015 U
Piezometer	EVM Temporary Piezometer @ MDS025	MTP001	0.0015 U	0.074		0.072		0.045		0.0040	0.015 U
Production Well	Agrium Production Well	MPW006	0.00010 U	0.0072		-0.00088	0.0010 U	0.0022		0.32	0.015 U
Lone Pine Creek	Above West Fork Lone Pine Creek	MST058	0.00010 U	0.0032		-0.00093	0.0010 U	0.0013		0.0030	0.015 U
West Fork Lone Pine Creek	Above tributary to West Fork Lone Pine	MST064[a]	0.00010 U	0.0016		0.0013		0.00065	0.00079 U	0.0015	0.0020 U
Tributary to West Fork Lone Pine Creek	Above West Fork Lone Pine Creek	MST276	0.00010 U	0.0020		0.0020		0.00086		0.00084	0.015 U
North Fork Lone Pine Creek	Northeast and above East Fork Lone Pine Creek	MST275	0.00010 U	0.020		-0.00011	0.0010 U	0.0034		0.0060	0.015 U
West Fork Rasmussen Creek	Above Rasmussen Creek	MST274	0.00010 U	0.0019		0.000040	0.0010 U	0.00047	0.00079 U	0.00081	0.0020 U
Short Creek	Below Ballard Mine	MST069	0.0015 U	0.037		0.49		0.0011		0.011	0.0020 U
Tributary of North Fork Wooley Valley Creek	Below Ballard Mine	MST096	0.00010 U	0.0036		0.027		0.00013	0.00079 U	0.0020	0.015 U
Springs	Hedin Spring	MSG001[a]	0.0015 U	0.0020		0.00078	0.0010 U	-0.000057	0.00079 U	0.0017	0.0020 U
	Garden Hose Spring	MSG003	0.0015 U	0.0066		0.46		0.00087		0.0014	0.0020 U
	Holmgren Spring	MSG004	0.0015 U	0.0089		0.018		0.0052		0.0015	0.0020 U
	Cattle Spring	MSG005[a]	0.0015 U	0.0039		0.0040		0.00013	0.00079 U	0.00061	0.0020 U
	Ballard Mine Southeast Spring	MSG006	0.00010 U	0.0072		0.26		0.0011		0.0030	0.015 U
Seeps	Enoch Valley Mine South Dump Seep	MDS026	0.0015 U	0.0087		0.0060		0.00089		0.0040	0.015 U
	Henry Mine South Pit Overburden Dump Limestone Drain (formerly FD002) (1997 #29)	MDS022	0.00010 U	0.0085		0.00044	0.0010 U	-0.00014	0.000050 U	0.0020	0.015 U
	Ballard Mine Pit #2 Upper Dump Seep	MDS030	0.00010 U	0.0050		0.59		0.00054	0.00079 U	0.0011	0.0020 U
	Ballard Mine Pit #2 Lower Dump Seep South	MDS031	0.00010 U	0.0057		0.43		0.00075	0.00079 U	0.0020	0.015 U
	Ballard Mine Pit #2 Lower Dump Seep North	MDS032	0.00010 U	0.011		0.29		0.00081		0.0060	0.015 U

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

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September 2004 Uncensored Validated Groundwater Data - Ions (mg/L)																
Feature	**Station Name**	**Station ID**	**Calcium**	**Flag**	**Chloride**	**Flag**	**Magnesium**	**Flag**	**Potassium**	**Flag**	**Sodium**	**Flag**	**Sulfate**	**Flag**	**Total Alkalinity**	**Flag**
Agricultural Well	Godfrey Field Well North	MAW006	38		9.2		10		1.6		8.7		10		120	
Domestic Well	EVM Shop Well	MPW019	69		6.7		9.5		0.60		6.8		9.8		220	
Monitoring Well	Henry North Pit Monitoring Well South	MMW003	66		55		28		2.7		35		120		160	
Piezometer	EVM Temporary Piezometer at MDS025	MTP001	110		NA		26		6.1		9.0		NA		1.0	2.0 U
Production Well	Agrium Production Well	MPW006	71		4.0		30		1.1		17		170		170	
Lone Pine Creek	Above West Fork Lone Pine Creek	MST058	98		5.2		18		3.4		9.2		34		310	
West Fork Lone Pine Creek	Above tributary to West Fork Lone Pine Creek	MST064	76		4.1		17		0.73		9.5		39		250	
Tributary to West Fork Lone Pine Creek	Above West Fork Lone Pine Creek	MST276	80		4.5		13		0.70		7.9		47		230	
North Fork Lone Pine Creek	Northeast and above East Fork Lone Pine Creek	MST275[2]	75		37		22		100		17		2.2		630	
West Fork Rasmussen Creek	Above Rasmussen Creek	MST274[2]	70		23		9.9		7.8		4.7		16		180	
Short Creek	Below Ballard Mine	MST069	430		17		86		3.9		24		760		300	
Tributary of North Fork Wooley Valley Creek	Below Ballard Mine	MST096	100		4.0		19		1.6		5.7		59		230	
Springs	Hedin Spring	MSG001	69		11		10		0.63		5.7		11		200	
	Garden Hose Spring	MSG003	140		10		15		0.9		9.2		110		270	
	Holmgren Spring	MSG004	78		3.5		26		1.9		4.8		46		250	
	Cattle Spring	MSG005	84		2.8		22		0.63		4.6		30		270	
	Ballard Mine Southeast Spring	MSG006	210		4.8		42		1.4		9.9		440		250	
Seeps	Enoch Valley Mine South Dump Seep	MDS026	280		6.8		77		1.8		17		0	0.50 U	300	
	Henry Mine South Pit Overburden Dump Limestone Drain (formerly FD002) (1997 #29)	MDS022	140		5.5		56		1.9		17		49		570	
	Ballard Mine Pit #2 Upper Dump Seep	MDS030	160		4.9		17		0.80		10		15		300	
	Ballard Mine Pit #2 Lower Dump Seep South	MDS031	140		3.2		20		1.7		12		200		230	
	Ballard Mine Pit #2 Lower Dump Seep North	MDS032	230		7.4		75		9.0		38		440		320	

Notes:

[a] Average of the QA replicate samples reported.

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September 2004 Uncensored Validated Riparian Soil Data - Total Metals (mg/kg dw)																	
Feature	**Station Name**	**Station**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Copper**	**Flag**	**Molybdenum**	**Flag**	**Selenium**	**Flag**	**Nickel**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Blackfoot River	Above Blackfoot Reservoir	MST232[a]	2.0	J	30	J	8.4	J	0.50	1.4 U	0.36	0.50 U	15		31	J	71	
	Below Woodall Mountain Creek	MST231	1.1	J	19	J	7.5	J	0.22	0.30 U	0.37	0.50 U	13		22	J	61	
	Below Ballard Creek	MST019	3.7	J	31	J	14	J	0.70	1.4 U	1.5		15		41	J	120	
	Below State Land Creek	MST020[a]	1.1	J	28	J	11	J	0.21	1.4 U	1.7		16		31	J	80	
	Above State Land Creek	MST230	0.91	J	20	J	7.7	J	0.19	1.4 U	1.9		13		22	J	60	
	Below Trail Creek	MST021	1.6	J	32	J	14	J	0.26	0.30 U	1.2		22		33	J	100	
	Below Wooley Valley Creek	MST022[a]	1.9	J	25	J	9.3	J	0.48	1.4 U	0.93		13		26	J	63	
	Below Dry Valley Creek, (1997 #20)	MST023	0.77	J	15	J	5.1	J	0.20	1.4 U	1.1		11		17	20 UJ	48	
	Above Dry Valley Creek, (1997 #19)	MST024	0.7	J	15	J	5.3	J	0.26	1.4 U	0.9		9.0		17	20 UJ	40	
	Below Wooley Range Ridge Creek	MST025[a]	1.0	J	17	J	7.0	J	0.30	1.4 U	0.93		11		19	20 UJ	51	
	Above Wooley Range Ridge Creek	MST026	2.4	J	28	J	8.8	J	0.70	1.4 U	0.80		15		27	J	83	
	Below Angus Creek	MST027	0.87	J	18	J	8.9	J	0.25	1.4 U	0.30	0.50 U	12		21	J	55	
	Above Diamond Creek Rd.	MST028	0.56	J	13	14 UJ	5.2	J	0.12	1.4 U	0.20	0.50 U	9.5		16	20 UJ	33	
	Below Spring Creek	MST229	1.3	J	22	J	10	J	0.30	1.4 U	1.0		26		26	J	119	
	Above Spring Creek	MST029	0.90	J	17	J	7.9	J	0.20	1.4 U	-0.03	0.50 U	7.3	8.4 U	19	20 UJ	41	
Meadow Creek	Above Blackfoot Reservoir	MST235	0.60	J	22	J	11	J	0.17	1.4 U	-0.13	0.50 U	10		23	J	42	
Little Blackfoot River	Above Blackfoot Reservoir	MST234	1.0	J	26	J	8.2	J	0.33	1.4 U	0.33	0.50 U	23		18	20 UJ	170	
	Below Long Valley Creek	MST043	0.83	J	25	J	8.5	J	0.30	1.4 U	1.1		20		27	J	91	
	Immediately below Henry Mine (1997 #24)	MST044	2.8	J	46	J	20	J	1.2	1.4 U	5.3		28		38	J	130	
	Above Henry Creek (1997 #23)	MST045	0.92	J	28	J	11	J	0.36	1.4 U	1.5		12		24	J	63	
	Below Lone Pine Creek	MST046	1.2	J	22	J	16	J	0.35	1.4 U	1.1		14		25	J	71	
	Above Lone Pine Creek	MST047	1.3	J	21	J	17	J	0.43	1.4 U	1.1		13		29	J	79	
	Below Reese Creek	MST048	1.3	J	25	J	15	J	0.28	1.4 U	0.29	0.50 U	16		28	J	85	
	Above Reese Creek	MST049	1.4	J	25	J	15	J	0.45	1.4 U	0.34	0.50 U	16		29	J	77	
	Upstream of Henry cutoff road	MST254	1.2	J	21	J	12	J	0.43	1.4 U	-0.02	0.50 U	13		25	J	60	
Lone Pine Creek	Above Little Blackfoot River	MST053[a]	1.2	J	22	J	16	J	1.8	J	0.93		12		28	J	75	
	Above spring-fed creek	MST054	1.7	J	25	J	15	J	0.34	1.4 U	1.4		18		27	J	100	
	Below Strip Mine Creek	MST055	1.5	J	26	J	16	J	0.33	1.4 U	0.39	0.50 U	14		26	J	82	
	Above Strip Mine Creek	MST056	1.7	J	29	J	21	J	0.38	1.4 U	1.0		20		32	J	130	
	Above West Fork Lone Pine Creek	MST058	2.5	J	31	J	25	J	1.4	1.4 U	1.3		27		36	J	110	
	Spring Fed Tributary Above Lone Pine Creek	MST277	3.4	J	40	J	29	J	0.43	1.4 U	0.70		25		57	J	140	
East Fork Lone Pine Creek	Below Wooley Valley Mine	MST226	2.4	J	30	J	17	J	0.87	1.4 U	1.4		31		59	J	120	
West Fork Lone Pine Creek	Above tributary to West Fork Lone Pine Creek	MST064	6.6	J	51	J	22	J	0.59	1.4 U	1.7		23		57	J	130	
	Above Lone Pine Creek	MST057	5.7	J	32	J	17	J	0.35	1.4 U	3.1		21		30	J	140	
Tributary to West Fork Lone Pine	Above West Fork Lone Pine Creek	MST276	7.7	J	58	J	20	J	1.8	J	1.5		35		48	J	280	
North Fork Lone Pine Creek	Northeast and above East Fork Lone Pine Creek	MST275	1.0	J	25	J	15	J	0.43	1.4 U	-0.32	0.50 U	18		39	J	57	
West Rasmussen Ridge Creek #1	Above Lone Pine Creek	MST059[a]	3.0	J	33	J	17	J	0.95	1.4 U	0.14	0.50 U	22		39	J	115	
West Rasmussen Ridge Creek #2	Above Lone Pine Creek	MST060	5.9	J	29	J	18	J	0.85	1.4 U	0.70		20		35	J	130	
West Rasmussen Ridge Creek #3	Above Lone Pine Creek	MST061[a]	13	J	75	J	24	J	3.0	J	2.2		48		61	J	360	
Strip Mine Creek	Above Lone Pine Creek	MST062	1.2	J	26	J	14	J	0.28	1.4 U	-0.01	0.50 U	12		20	20 UJ	71	
	Below Henry Mine	MST063	4.6	J	47	J	26	J	2.2	J	4.3		44		55	J	220	
Angus Creek	Above Blackfoot River	MST126	2.4	J	34	J	13	J	0.62	1.4 U	0.38	0.50 U	23		39	J	110	
	Below No Name Creek	MST127	2.7	J	32	J	13	J	0.33	1.4 U	0.22	0.50 U	21		36	J	110	
	Above No Name Creek and below Rasmussen Creek	MST132[a]	3.3	J	38	J	17	J	0.67	1.4 U	0.45	0.50 U	24		40	J	140	
	Above Rasmussen Creek	MST128	1.4	J	31	J	16	J	0.36	1.4 U	0.40	0.50 U	23		38	J	93	
	R-B&M-10, below Wooley Valley Mine	MST129	3.0	J	41	J	21	J	0.71	1.4 U	2.4		28		45	J	140	
	R-B&M-12, below Upper Angus Creek Reservoir	MST130	5.5	J	51	J	22	J	1.6	J	2.3		50		54	J	190	

September 2004 Uncensored Validated Riparian Soil Data - Total Metals (mg/kg dw)																			
Feature	Station Name	Station	Cadmium	Flag	Chromium	Flag	Copper	Flag	Molybdenum	Flag	Selenium	Flag	Nickel	Flag	Vanadium	Flag	Zinc	Flag
West Fork Rasmussen Creek	Above Rasmussen Creek	MST274	1.0	J	20	J	13	J	0.63	1.4 U	1.0		22		50	J	78	
Rasmussen Creek	Above Angus Creek	MST131	2.0	J	31	J	15	J	0.52	1.4 U	0.47	0.50 U	21		36	J	110	
	M-B&M-1, below Enoch Valley Mine (1997 #38)	MST133	2.1	J	32	J	18	J	0.63	1.4 U	0.80		27		39	J	124	
	Below West Pond Creek	MST134	2.8	J	32	J	16	J	0.64	1.4 U	3.7		25		41	J	137	
	Above West Pond Creek	MST135	2.7	J	34	J	17	J	0.83	1.4 U	2.5		22		45	J	131	
	Headwaters near Enoch Valley Mine Shop Pond	MST136	2.6	J	42	J	22	J	1.0	1.4 U	1.3		30		30	J	137	
East Fork Rasmussen Creek	Above Rasmussen Creek	MST143	3.4	J	40	J	14	J	0.70	1.4 U	0.18	0.50 U	23		48	J	120	
	Headwaters	MST269	26	J	300	J	51	J	7.3	J	14		210		240	J	1400	
West Pond Creek	Headwaters, below West Pond	MST144	8.7	J	79	J	27	J	2.4	J	6.1		41		76	J	197	
Long Valley Creek	Downstream of station MST050	MST270	3.2	J	42	J	27	J	0.60	1.4 U	1.6		31		51	J	200	
	Above Little Blackfoot River and Below East Fork	MST271	1.8	J	34	J	21	J	0.33	1.4 U	0.30	0.50 U	20		43	J	110	
	Below Ballard Mine, (ponded area)	MST050	1.3	J	19	J	9.7	J	0.90	1.4 U	0.37	0.50 U	19		32	J	60	
East Fork Long Valley Creek	Below Henry Mine	MST051[a]	3.8	J	41	J	20	J	0.29	1.4 U	1.8		29		53	J	180	
Henry Creek	Above Little Blackfoot River	MST052	6.6	J	75	J	27	J	2.9	J	3.4		47		80	J	250	
Ballard Creek	Above Blackfoot River	MST066	2.9	J	25	J	24	J	0.90	1.4 U	9.8		20		62	J	94	
	Headwaters	MST067	24	J	160	J	40	J	9.0	J	39		100		210	J	660	
West Fork Ballard Creek	Headwaters	MST068	35	J	260	J	39	J	12	J	25		110		350	J	690	
Short Creek	Below Ballard Mine	MST069	4.2	J	39	J	21	J	1.7	J	2.8		23		45	J	130	
Wooley Valley Creek	Above Blackfoot River	MST088	2.6	J	33	J	16	J	0.82	1.4 U	0.29	0.50 U	21		43	J	130	
	Above Loadout Creek at road	MST272	5.6	J	61	J	23	J	1.3	1.4 U	2.5		34		93	J	200	
	Above ponding and below MST089	MST273	3.6	J	34	J	20	J	0.70	1.4 U	6.9		21		43	J	130	
	Below North Fork Wooley Valley Creek	MST089	4.7	J	39	J	22	J	0.77	1.4 U	6.6		24		46	J	160	
	Above North Fork Wooley Valley Creek	MST090	1.7	J	21	J	16	J	0.52	1.4 U	0.40	0.50 U	11		23	J	78	
North Fork Wooley Valley Creek	Above Wooley Valley Creek	MST092[a]	6.0	J	70	J	25	J	1.1	1.4 U	19		36		74	J	250	
	Above Ballard Mine	MST093	2.7	J	23	J	21	J	0.58	1.4 U	0.50		15		30	J	110	
Spring-fed tributary #1 of North Fork Wooley Valley Creek	Below Ballard Mine	MST094	1.4	J	37	J	20	J	0.60	1.4 U	0.70		24		44	J	92	
Spring-fed tributary #2 of North Fork Wooley Valley Creek	Below Ballard Mine	MST095	16	J	170	J	42	J	6.1	J	15		70		210	J	440	
Tributary of North Fork Wooley	Below Ballard Mine	MST096	0.44	J	17	J	10	J	0.60	1.4 U	1.3		17		31	J	43	
Caldwell Creek	Below Phosphoria Formation outcrop (1997 #62)	MST101	1.8	J	26	J	19	J	0.47	1.4 U	0.50		21		33	J	99	
Stewart Creek	Above Diamond Creek	MST236	4.4	J	43	J	19	J	1.7	J	0.70		27		52	J	160	
Timber Creek	Above Diamond Creek	MST237	1.4	J	27	J	16	J	0.40	1.4 U	0.70		18		35	J	91	
Blackfoot Reservoir Delta	At Blackfoot River	MRV011	1.1	J	22	J	5.0	J	0.23	0.30 U	0.5		11		21	J	50	
	At Little Blackfoot River	MRV016	1.1	J	20	J	6.0	J	0.30	1.4 U	1.6		13		14	20 UJ	87	
	At Meadow Creek	MRV017	0.53	J	14	14 UJ	5.3	J	0.15	1.4 U	-0.19	0.50 U	7.8	8.4 U	16	20 UJ	24	
Springs	Hedin Spring	MSG001	0.65	J	19	J	13	J	0.72	1.4 U	0.70		19		37	J	66	
	Taylor Spring	MSG002	0.92	J	30	J	22	J	0.56	1.4 U	0.03	0.50 U	28		43	J	73	
	Garden Hose Spring	MSG003	10	J	200	J	31	J	3.5	J	52		75		87	J	320	
	Holmgren Spring	MSG004	11	J	130	J	38	J	4.3	J	6.3		71		85	J	300	
	Cattle Spring	MSG005[a]	1.3	J	19	J	15	J	0.80	1.4 U	17		15		30	J	69	
	Ballard Mine Southeast Spring	MSG006	1.4	J	16	J	7.0	J	1.2	1.4 U	570		11		24	J	47	

September 2004 Uncensored Validated Riparian Soil Data - Total Metals (mg/kg dw)																	
Feature	Station Name	Station	Cadmium	Flag	Chromium	Flag	Copper	Flag	Molybdenum	Flag	Selenium	Flag	Nickel	Flag	Vanadium	Flag	Zinc	Flag
Ponds	Henry Mine Henry Pond	MSP014	5.8	J	48	J	23	J	3.3	J	12		43		65	J	230	
	Henry Mine Smith Pond	MSP015	5.7	J	46	J	22	J	1.4	1.4 U	24		48		66	J	270	
	Henry Mine Center Henry Pond	MSP016	21	J	160	J	27	J	5.9	J	45		87		220	J	560	
	Henry Mine South Pit Pond	MSP055	67	J	470	J	56	J	15	J	28		250		770	J	1600	
	Ballard Mine Dredge Pond	MSP010	23	J	2800	J	73	J	31.0	J	53		1600		210	J	1000	
	Ballard Mine Upper Elk Pond	MSP011	110	J	790	J	130	J	49	J	48		190		570	J	1200	
	Ballard Mine Lower Elk Pond	MSP012	130	J	910	J	130	J	42	J	38		160		770	J	1200	
	Ballard Mine Northeast Pond	MSP013	30	J	374	J	70	J	14	J	24		140		230	J	660	
	Ballard Mine Pit #4 Stock Pond	MSP059	28	J	460	J	110	J	25	J	39		230		300	J	990	
	Ballard Mine Pit #6 Pond	MSP062	130	J	1000	J	120	J	43	J	21		260		650	J	1400	
	Enoch Valley Mine South Pond	MSP017	21	J	170	J	34	J	4.0	J	50		84		140	J	420	
	Enoch Valley Mine Keyhole Pond	MSP018	100	J	240	J	52	J	16	J	70		780		220	J	4500	
	Enoch Valley Mine Bat Cave Pond	MSP019	41	J	270	J	41	J	4.0	J	9.8		91		270	J	890	
	Enoch Valley Mine West Pond	MSP020	24	J	200	J	29	J	2.6	J	18		120		130	J	700	
	Enoch Valley Mine Stock Pond	MSP021	46	J	420	J	59	J	5.3	J	42		120		300	J	830	
	Enoch Valley Mine Tipple Pond	MSP022	7.1	J	67	J	19	J	2.7	J	6.7		35		98	J	211	
	Enoch Valley Mine Haul Road Pond	MSP023	30	J	360	J	51	J	10	J	25		120		440	J	910	
	Enoch Valley Mine Shop Pond	MSP031	13	J	350	J	59	J	3.7	J	24		120		180	J	890	
Seeps	Enoch Valley Mine West Dump Seep	MDS025	35	J	770	J	1300	J	14	J	50		1800		230	J	6700	
	Enoch Valley Mine South Dump Seep	MDS026	16	J	310	J	72	J	3.7	J	6.5		52		120	J	180	
	Henry Mine South Pit Overburden Dump Seep (1997 #28)	MDS016	16	J	310	J	46	J	7.5	J	7.8		150		150	J	550	
	Henry Mine South Pit Overburden Dump Limestone	MDS022	3.0	J	25	J	14	J	1.3	1.4 U	6.9		63		48	J	140	
	Ballard Mine Pit #2 Upper Dump Seep	MDS030	7.0	J	98	J	40	J	3.4	J	10		53		93	J	250	
	Ballard Mine Pit #2 Lower Dump Seep South	MDS031	3.2	J	63	J	25	J	2.3	J	3.5		55		69	J	180	
	Ballard Mine Pit #2 Lower Dump Seep North	MDS032	7.0	J	78	J	30	J	4.0	J	160		68		66	J	280	
	Ballard Mine Goat Seep	MDS033	53	J	300	J	270	J	47	J	24		770		120	J	2600	

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

Data validation was performed in accordance with *MWH SOP-NW-18.1* and *USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.*

Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.

Data qualifier definitions are:

(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration, or the sample detection limit.

(J) - The associated value is an estimated quantity.

(R) - The data are unusable.

(UJ) - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

N/A - Not Applicable.

September 2004 Uncensored Validated Riparian Soil Data - Texture					
Feature	**Station Name**	**Station**	**Total Organic Carbon (%)[b]**	**Solids (%)[b]**	**Texture Class[b]**
Blackfoot River	Above Blackfoot Reservoir	MST232[a]	2.4	91	L
	Below Woodall Mountain Creek	MST231	2.9	79	L
	Below Ballard Creek	MST019	5.1	81	L
	Below State Land Creek	MST020[a]	2.4	77	SiCL
	Above State Land Creek	MST230	2.0	72	SiL
	Below Trail Creek	MST021	5.2	80	CL/SiCL
	Below Wooley Valley Creek	MST022[a]	1.8	83	L
	Below Dry Valley Creek, (1997 #20)	MST023	2.0	79	L
	Above Dry Valley Creek, (1997 #19)	MST024	3.0	83	L
	Below Wooley Range Ridge Creek	MST025[a]	3.8	81	L
	Above Wooley Range Ridge Creek	MST026	1.9	88	L
	Below Angus Creek	MST027	3.9	85	SiL
	Above Diamond Creek Rd.	MST028	1.9	85	SL
	Below Spring Creek	MST229	2.4	71	SiL
	Above Spring Creek	MST029	2.4	89	L
Meadow Creek	Above Blackfoot Reservoir	MST235	1.7	88	L
Little Blackfoot River	Above Blackfoot Reservoir	MST234	3.1	82	L/SiL
	Below Long Valley Creek	MST043	3.7	63	L/SiL
	Immediately below Henry Mine (1997 #24)	MST044	3.9	84	CL/C
	Above Henry Creek (1997 #23)	MST045	3.1	69	L
	Below Lone Pine Creek	MST046	5.3	83	SiL
	Above Lone Pine Creek	MST047	7.1	80	L
	Below Reese Creek	MST048	4.1	80	SL
	Above Reese Creek	MST049	4.0	79	SL
	Upstream of Henry cutoff road	MST254	4.5	31	SL
Lone Pine Creek	Above Little Blackfoot River	MST053[a]	6.4	82	SiL
	Above spring-fed creek	MST054	5.4	76	SiL
	Below Strip Mine Creek	MST055	6.4	82	SL
	Above Strip Mine Creek	MST056	4.7	81	SiL
	Above West Fork Lone Pine Creek	MST058	12	58	L
	Spring Fed Tributary Above Lone Pine Creek	MST277	13	61	CL
East Fork Lone Pine Creek	Below Wooley Valley Mine	MST226	7.0	78	CL
West Fork Lone Pine Creek	Above tributary to West Fork Lone Pine Creek	MST064	12	76	L
	Above Lone Pine Creek	MST057	7.1	81	SiL
Tributary to West Fork Lone Pine Creek	Above West Fork Lone Pine Creek	MST276	2.4	87	L
North Fork Lone Pine Creek	Northeast and above East Fork Lone Pine Creek	MST275	5.9	78	L
West Rasmussen Ridge Creek #1	Above Lone Pine Creek	MST059[a]	2.9	84	SiL
West Rasmussen Ridge Creek #2	Above Lone Pine Creek	MST060	9.2	69	L
West Rasmussen Ridge Creek #3	Above Lone Pine Creek	MST061[a]	4.1	82	SiL
Strip Mine Creek	Above Lone Pine Creek	MST062	4.5	86	SL
	Below Henry Mine	MST063	8.5	53	L/CL
Angus Creek	Above Blackfoot River	MST126	2.7	75	SiL
	Below No Name Creek	MST127	2.6	81	L
	Above No Name Creek and below Rasmussen Creek	MST132[a]	3.6	87	SiL
	Above Rasmussen Creek	MST128	3.6	75	SiL
	R-B&M-10, below Wooley Valley Mine	MST129	8.2	33	SiL
	R-B&M-12, below Upper Angus Creek Reservoir	MST130	4.4	70	SiL
West Fork Rasmussen Creek	Above Rasmussen Creek	MST274	6.4	78	Si L
Rasmussen Creek	Above Angus Creek	MST131	4.3	110	SiL
	M-B&M-1, below Enoch Valley Mine (1997 #38)	MST133	5.1	77	SiL
	Below West Pond Creek	MST134	4.9	73	SiL
	Above West Pond Creek	MST135	7.0	56	SiL
	Headwaters near Enoch Valley Mine Shop Pond	MST136	2.5	93	SiL
East Fork Rasmussen Creek	Above Rasmussen Creek	MST143	2.8	80	CL/SiCL
	Headwaters	MST269	3.0	75	SiL
West Pond Creek	Headwaters, below West Pond	MST144	2.2	91	SiL
Long Valley Creek	Downstream of station MST050	MST270	7.0	79	SiCL
	Above Little Blackfoot River and Below East +B89 Fork Long Valley Creek	MST271	3.9	84	SiL
	Below Ballard Mine, (ponded area)	MST050	3.5	81	L
East Fork Long Valley Creek	Below Henry Mine	MST051[a]	3.1	84	SiL
Henry Creek	Above Little Blackfoot River	MST052	1.8	88	SiL
Ballard Creek	Above Blackfoot River	MST066	13	63	L/SiL
	Headwaters	MST067	5.8	74	SiCL
West Fork Ballard Creek	Headwaters	MST068	3.8	88	L
Short Creek	Below Ballard Mine	MST069	4.7	83	SiL
Wooley Valley Creek	Above Blackfoot River	MST088	2.4	88	SiL
	Above Loadout Creek at road	MST272	6.1	78	SiL
	Above ponding and below MST089	MST273	8.1	71	L
	Below North Fork Wooley Valley Creek	MST089	11	64	L
	Above North Fork Wooley Valley Creek	MST090	9.3	79	L
North Fork Wooley Valley Creek	Above Wooley Valley Creek	MST092[a]	15	59	S
	Above Ballard Mine	MST093	9.3	83	SiL

September 2004 Uncensored Validated Riparian Soil Data - Texture					
Feature	**Station Name**	**Station**	**Total Organic Carbon (%)[b]**	**Solids (%)[b]**	**Texture Class[b]**
Spring-fed tributary #1 of North Fork Wooley Valley Creek	Below Ballard Mine	MST094	4.0	81	CL
Spring-fed tributary #2 of North Fork Wooley Valley Creek	Below Ballard Mine	MST095	5.9	83	CL
Tributary of North Fork Wooley Valley Creek	Below Ballard Mine	MST096	3.6	81	SiCL
Caldwell Creek	Below Phosphoria Formation outcrop (1997 #62)	MST101	5.3	74	SiL
Stewart Creek	Above Diamond Creek	MST236	3.7	72	L
Timber Creek	Above Diamond Creek	MST237	4.4	70	SiL
Blackfoot Reservoir Delta	At Blackfoot River	MRV011	1.8	78	L
	At Little Blackfoot River	MRV016	2.0	62	L
	At Meadow Creek	MRV017	1.2	89	SL
Springs	Hedin Spring	MSG001	3.8	86	SiCL
	Taylor Spring	MSG002	3.4	88	CL
	Garden Hose Spring	MSG003	4.3	84	L
	Holmgren Spring	MSG004	3.9	85	L
	Cattle Spring	MSG005[a]	21	28	CL
	Ballard Mine Southeast Spring	MSG006	4.1	18	SCL
Ponds	Henry Mine Henry Pond	MSP014	4.4	67	SiL
	Henry Mine Smith Pond	MSP015	3.4	89	CL
	Henry Mine Center Henry Pond	MSP016	1.6	91	L
	Henry Mine South Pit Pond	MSP055	2.0	93	SL
	Ballard Mine Dredge Pond	MSP010	2.6	92	L/SiL
Ponds	Ballard Mine Upper Elk Pond	MSP011	4.2	90	L
	Ballard Mine Lower Elk Pond	MSP012	4.1	93	L
	Ballard Mine Northeast Pond	MSP013	2.9	89	CL
	Ballard Mine Pit #4 Stock Pond	MSP059	2.3	85	SiCL
	Ballard Mine Pit #6 Pond	MSP062	3.2	91	SiL
	Enoch Valley Mine South Pond	MSP017	2.6	78	SiL
	Enoch Valley Mine Keyhole Pond	MSP018	2.7	88	L
	Enoch Valley Mine Bat Cave Pond	MSP019	1.7	82	SL
	Enoch Valley Mine West Pond	MSP020	1.7	91	SiL
	Enoch Valley Mine Stock Pond	MSP021	2.1	83	L
	Enoch Valley Mine Tipple Pond	MSP022	1.5	90	SiL
	Enoch Valley Mine Haul Road Pond	MSP023	1.9	90	CL/SiC
	Enoch Valley Mine Shop Pond	MSP031	4.2	65	CL
Seeps	Enoch Valley Mine West Dump Seep	MDS025	3.1	89	L
	Enoch Valley Mine South Dump Seep	MDS026	3.6	64	SiC
	Henry Mine South Pit Overburden Dump Seep (1997 #28)	MDS016	2.7	76	L
	Henry Mine South Pit Overburden Dump Limestone Drain (formerly FD002) (1997 #29)	MDS022	7.1	44	SiL
	Ballard Mine Pit #2 Upper Dump Seep	MDS030	6.9	90	CL
	Ballard Mine Pit #2 Lower Dump Seep South	MDS031	1.3	92	SiCL
	Ballard Mine Pit #2 Lower Dump Seep North	MDS032	5.4	73	SiL
	Ballard Mine Goat Seep	MDS033	2.9	82	L

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

C - Clay, CL - Clay Loam, L - Loam, S - Sand, SCL - Sandy Clay Loam, SiC - Silty Clay, SiCL - Silty Clay Loam, SiL - Silt Loam, SL - Sandy Loam

September 2004 Uncensored Validated Riparian Vegetation Data - Total Metals (mg/kg dw)														
Feature	**Station Name**	**Station**	**Cadmium**	**Flag**	**Copper**	**Flag**	**Moisture (%)**	**Flag**	**Molybdenum**	**Flag**	**Selenium**	**Flag**	**Zinc**	**Flag**
Blackfoot River	Above Blackfoot Reservoir	MST232[a]	0.055	0.050 U	2.5	9.3 U	51		2.1	J	0.22	0.50 U	9.3	
	Below Woodall Mountain Creek	MST231	0.037	0.050 U	6.0	9.3 U	52		1.3	J	-0.032	0.50 U	38	
	Below Ballard Creek	MST019	0.63		3.7	9.3 U	56		0.88	J	-0.25	0.50 U	28	
	Below State Land Creek	MST020[a]	0.093		4.0	9.3 U	73		0.52	0.78 UJ	0.16	0.50 U	44	
	Above State Land Creek	MST230	0.060		3.6	9.3 U	76		0.46	0.78 UJ	0.13	0.50 U	28	
	Below Trail Creek	MST021	0.030	0.050 U	1.8	9.3 U	51		0.57	0.78 UJ	0.0	0.50 U	19	
	Below Wooley Valley Creek	MST022[a]	0.29		4.4	9.3 U	63		0.77	0.78 UJ	0.35	0.50 U	25	
	Below Dry Valley Creek, (1997 #20)	MST023	0.16		5.2	9.3 U	64		2.1	J	0.31	0.50 U	23	
	Above Dry Valley Creek, (1997 #19)	MST024	0.27		6.3	9.3 U	71		2.7	J	-0.099	0.50 U	37	
	Below Wooley Range Ridge Creek	MST025	0.40		4.7	9.3 U	64		1.4	J	0.13	0.50 U	32	
	Above Wooley Range Ridge Creek	MST026	0.23		3.0	9.3 U	52		2.1	J	0.2	0.50 U	21	
	Below Angus Creek	MST027	0.23		2.7	9.3 U	61		2.0	J	-0.12	0.50 U	16	
	Above Diamond Creek Rd.	MST028	0.070		2.3	9.3 U	60		0.47	0.78 UJ	-0.22	0.50 U	11	
	Below Spring Creek	MST229	0.060		2.5	9.3 U	54		0.27	0.78 UJ	-0.17	0.50 U	16	
	Above Spring Creek	MST029	0.13		2.4	9.3 U	53		0.88	J	-0.29	0.50 U	12	
Meadow Creek	Above Blackfoot Reservoir	MST235	0.11		1.8	9.3 U	57		0.68	0.78 UJ	-0.32	0.50 U	12	
Little Blackfoot River	Above Blackfoot Reservoir	MST234	0.15		2.9	9.3 U	54		3.3	J	-0.17	0.50 U	29	
	Below Long Valley Creek	MST043	0.026	0.050 U	1.9	9.3 U	54		1.6	J	0.32	0.50 U	11	
	Immediately below Henry Mine (1997 #24)	MST044	0.26		4.0	9.3 U	60		4.5	J	7.9		31	
	Above Henry Creek (1997 #23)	MST045	0.050		4.9	9.3 U	66		0.63	0.78 UJ	-0.45	0.50 U	36	
	Below Lone Pine Creek	MST046	0.37		5.0	9.3 U	64		1.8	J	-0.52	0.50 U	26	
	Above Lone Pine Creek	MST047	0.16		4.2	9.3 U	54		1.5	J	-0.63	0.50 U	38	
	Below Reese Creek	MST048	0.10		4.5	9.3 U	54		0.63	0.78 UJ	-0.33	0.50 U	44	
	Above Reese Creek	MST049	0.14		5.0	9.3 U	58		2.6	J	-0.32	0.50 U	28	
	Upstream of Henry cutoff road	MST254	0.12		2.9	9.3 U	57		0.91	J	-0.32	0.50 U	23	
Lone Pine Creek	Above Little Blackfoot River	MST053[a]	0.30		5.9	9.3 U	61		1.2	J	-0.58	0.50 U	35	
	Above spring-fed creek	MST054	0.070		5.5	9.3 U	62		0.88	J	-0.60	0.50 U	25	
	Below Strip Mine Creek	MST055	0.040	0.050 U	3.0	9.3 U	58		0.48	0.78 UJ	-0.21	0.50 U	25	
	Above Strip Mine Creek	MST056	0.84		4.5	9.3 U	49		1.1	J	-0.58	0.50 U	35	
	Above West Fork Lone Pine Creek	MST058	-0.17	0.050 U	4.2	9.3 U	57		1.6	J	0.38	0.50 U	19	
	Spring Fed Tributary Above Lone Pine Creek	MST277	0.18		2.4	9.3 U	50		1.3	J	-0.083	0.50 U	22	
East Fork Lone Pine Creek	Below Wooley Valley Mine	MST226	0.73		5.2	9.3 U	61		1.2	J	0.19	0.50 U	40	
West Fork Lone Pine Creek	Above tributary to West Fork Lone Pine Creek	MST064	0.49		6.6	9.3 U	54		1.4	J	0.36	0.50 U	45	
	Above Lone Pine Creek	MST057	-0.11	0.050 U	3.7	9.3 U	53		0.72	0.78 UJ	0.50		36	
Tributary to West Fork Lone Pine Creek	Above West Fork Lone Pine Creek	MST276	0.70		6.5	9.3 U	64		1.2	J	0.42	0.50 U	38	
North Fork Lone Pine Creek	Northeast and above East Fork Lone Pine Creek	MST275	0.22		4.7	9.3 U	62		1.5	J	0.14	0.50 U	26	
West Rasmussen Ridge Creek #1	Above Lone Pine Creek	MST059[a]	-0.11	0.050 U	1.7	9.3 U	61		5.5	J	0.36	0.50 U	13	
West Rasmussen Ridge Creek #2	Above Lone Pine Creek	MST060	0.65		1.3	9.3 U	56		5.0	J	0.11	0.50 U	36	
West Rasmussen Ridge Creek #3	Above Lone Pine Creek	MST061[a]	0.73		3.3	9.3 U	68		5.1	J	0.97		44	
Strip Mine Creek	Above Lone Pine Creek	MST062	0.033	0.050 U	2.1	9.3 U	54		1.2	J	-0.37	0.50 U	13	
	Below Henry Mine	MST063	0.39		5.6	9.3 U	73		1.2	J	-0.29	0.50 U	36	
Angus Creek	Above Blackfoot River	MST126	0.39		4.1	9.3 U	56		1.6	J	-0.27	0.50 U	25	
	Below No Name Creek	MST127	0.43		3.9	9.3 U	53		0.54	0.78 UJ	-0.27	0.50 U	29	
	Above No Name Creek and below Rasmussen Creek	MST132[a]	0.42		5.2	9.3 U	50		1.1	J	-0.22	0.50 U	29	
	Above Rasmussen Creek	MST128	0.34		4.6	9.3 U	52		0.71	0.78 UJ	-0.2	0.50 U	31	
	R-B&M-10, below Wooley Valley Mine	MST129	0.11		2.3	9.3 U	60		3.3	J	-0.27	0.50 U	21	
	R-B&M-12, below Upper Angus Creek Reservoir	MST130	0.73		4.2	9.3 U	69		0.59	0.78 UJ	-0.22	0.50 U	31	
West Fork Rasmussen Creek	Above Rasmussen Creek	MST274	0.45		3.2	9.3 U	50		1.3	J	0.18	0.50 U	33	

September 2004 Uncensored Validated Riparian Vegetation Data - Total Metals (mg/kg dw)														
Feature	Station Name	Station	Cadmium	Flag	Copper	Flag	Moisture (%)	Flag	Molybdenum	Flag	Selenium	Flag	Zinc	Flag
Rasmussen Creek	Above Angus Creek	MST131	0.45		4.5	9.3 U	45		0.72	0.78 UJ	-0.24	0.50 U	33	
	M-B&M-1, below Enoch Valley Mine (1997 #38)	MST133	0.24		2.9	9.3 U	55		0.53	0.78 UJ	-0.31	0.50 U	16	
	Below West Pond Creek	MST134	0.20		2.5	9.3 U	53		1.2	J	-0.15	0.50 U	22	
	Above West Pond Creek	MST135	0.14		1.5	9.3 U	55		0.70	0.78 UJ	-0.37	0.50 U	17	
	Headwaters near Enoch Valley Mine Shop Pond	MST136	0.58		3.7	9.3 U	48		1.1	J	0.18	0.50 U	36	
East Fork Rasmussen Creek	Above Rasmussen Creek	MST143	0.16		1.7	9.3 U	37		0.48	0.78 UJ	-0.37	0.50 U	28	
	Headwaters	MST269	1.5		4.3	9.3 U	49		1.2	J	1.5		130	
West Pond Creek	Headwaters, below West Pond	MST144	0.33		2.6	9.3 U	40		0.74	0.78 UJ	1.6		16	
Long Valley Creek	Downstream of station MST050	MST270	0.40		2.2	9.3 U	30		1.4	J	0.12	0.50 U	22	
	Above Little Blackfoot River and Below East Fork Long Valley Creek	MST271	0.042	0.050 U	3.3	9.3 U	53		0.71	0.78 UJ	0.33	0.50 U	12	
	Below Ballard Mine, (ponded area)	MST050	1.3		3.9	9.3 U	43		2.5	J	0.36	0.50 U	31	
East Fork Long Valley Creek	Below Henry Mine	MST051[a]	0.50		5.4	9.3 U	63		3.5	J	-0.54	0.50 U	30	
Henry Creek	Above Little Blackfoot River	MST052	0.82		6.0	9.3 U	53		19	J	0.31	0.50 U	48	
Ballard Creek	Above Blackfoot River	MST066	0.37		3.2	9.3 U	49		1.3	J	0.46	0.50 U	26	
	Headwaters	MST067	0.26		2.6	9.3 U	50		0.47	0.78 UJ	0.60		14	
West Fork Ballard Creek	Headwaters	MST068	0.090		1.2	9.3 U	37		2.3	J	40		29	
Short Creek	Below Ballard Mine	MST069	0.34		2.9	9.3 U	51		0.54	0.78 UJ	3.1		13	
Wooley Valley Creek	Above Blackfoot River	MST088	0.56		3.4	9.3 U	46		1.4	J	0.31	0.50 U	36	
	Above Loadout Creek at road	MST272	0.38		3.6	9.3 U	33		2.4	J	-0.15	0.50 U	16	
	Above ponding and below MST089	MST273	0.18		4.5	9.3 U	45		0.78	J	0.38	0.50 U	37	
	Below North Fork Wooley Valley Creek	MST089	0.36		3.9	9.3 U	39		1.2	J	0.25	0.50 U	38	
	Above North Fork Wooley Valley Creek	MST090	0.24		3.2	9.3 U	40		1.2	J	-0.34	0.50 U	26	
North Fork Wooley Valley Creek	Above Wooley Valley Creek	MST092[a]	0.53		4.1	9.3 U	45		2.3	J	0.14	0.50 U	50	
	Above Ballard Mine	MST093	0.35		4.1	9.3 U	41		1.6	J	0.23	0.50 U	27	
Spring-fed tributary #1 of North Fork Wooley Valley Creek	Below Ballard Mine	MST094	0.12		4.3	9.3 U	55		1.2	J	0.33	0.50 U	17	
Spring-fed tributary #2 of North Fork Wooley Valley Creek	Below Ballard Mine	MST095	1.2		3.5	9.3 U	48		2.3	J	13		36	
Tributary of North Fork Wooley Valley Creek	Below Ballard Mine	MST096	0.22		5.6	9.3 U	57		0.60	0.78 UJ	2.4		22	
Caldwell Creek	Below Phosphoria Formation outcrop (1997 #62)	MST101	0.60		8.8	9.3 U	79		2.4	J	0.8		64	
Stewart Creek	Above Diamond Creek	MST236	0.90		5.1	9.3 U	41		0.94	J	0.099	0.50 U	52	
Timber Creek	Above Diamond Creek	MST237	0.34		2.3	9.3 U	57		0.72	0.78 UJ	-0.36	0.50 U	28	
Blackfoot Reservoir Delta	At Blackfoot River	MRV011	0.080		1.4	9.3 U	57		0.47	0.78 UJ	0.069	0.50 U	21	
	At Little Blackfoot River	MRV016	0.024	0.050 U	1.1	9.3 U	65		0.31	0.78 UJ	-0.28	0.50 U	49	
	At Meadow Creek	MRV017	0.080		5.0	9.3 U	67		0.76	0.78 UJ	-0.36	0.50 U	38	
Springs	Hedin Spring	MSG001	0.23		4.1	9.3 U	54		4.6	J	-0.0053	0.50 U	24	
	Taylor Spring	MSG002	-0.035	0.050 U	4.5	9.3 U	61		1.9	J	0.40	0.50 U	26	
	Garden Hose Spring	MSG003	0.87		1.6	9.3 U	51		0.94	J	9.3		15	
	Holmgren Spring	MSG004	0.23		3.1	9.3 U	54		3.9	J	1.3		24	
	Cattle Spring	MSG005[a]	0.26		2.7	9.3 U	58		0.77	0.78 UJ	0.93		32	
	Ballard Mine Southeast Spring	MSG006	0.19		1.9	9.3 U	56		0.87	J	17		19	
Ponds	Henry Mine Henry Pond	MSP014	0.48		5.5	9.3 U	51		2.3	J	3.3		48	
	Henry Mine Smith Pond	MSP015	0.17		3.0	9.3 U	53		0.40	0.78 UJ	25		120	
	Henry Mine Center Henry Pond	MSP016	2.3		2.6	9.3 U	48		0.65	0.78 UJ	6.5		35	
	Henry Mine South Pit Pond	MSP055	2.9		7.7	9.3 U	62		5.5	J	65		340	

September 2004 Uncensored Validated Riparian Vegetation Data - Total Metals (mg/kg dw)														
Feature	**Station Name**	**Station**	**Cadmium**	**Flag**	**Copper**	**Flag**	**Moisture (%)**	**Flag**	**Molybdenum**	**Flag**	**Selenium**	**Flag**	**Zinc**	**Flag**
Ponds	Ballard Mine Dredge Pond	MSP010	2.8		5.3	9.3 U	64		4.8	J	27		58	
	Ballard Mine Upper Elk Pond	MSP011	2.0		2.6	9.3 U	46		3.1	J	8.5		55	
	Ballard Mine Lower Elk Pond	MSP012	4.4		4.5	9.3 U	56		6.1	J	10		130	
	Ballard Mine Northeast Pond	MSP013	0.92		2.8	9.3 U	40		3.5	J	23		19	
	Ballard Mine Pit #4 Stock Pond	MSP059	2.8		5.6	9.3 U	58		46	J	16		92	
	Ballard Mine Pit #6 Pond	MSP062	11		4.1	9.3 U	54		12	J	3.2		79	
	Enoch Valley Mine South Pond	MSP017	0.52		2.1	9.3 U	50		2.8	J	11		27	
	Enoch Valley Mine Keyhole Pond	MSP018	5.1		2.8	9.3 U	60		4.0	J	17		330	
	Enoch Valley Mine Bat Cave Pond	MSP019	0.38		1.1	9.3 U	54		0.85	J	6.4		48	
	Enoch Valley Mine West Pond	MSP020	2.4		6.5	9.3 U	59		0.75	0.78 UJ	15		180	
	Enoch Valley Mine Stock Pond	MSP021	0.98		2.6	9.3 U	51		1.2	J	11		65	
	Enoch Valley Mine Tipple Pond	MSP022	1.4		3.8	9.3 U	54		1.8	J	2.8		43	
	Enoch Valley Mine Haul Road Pond	MSP023	2.7		3.6	9.3 U	58		3.8	J	3.4		48	
	Enoch Valley Mine Shop Pond	MSP031	3.1		8.5	9.3 U	40		17	J	3.6		73	
Seeps	Enoch Valley Mine West Dump Seep	MDS025	0.63		2.8	9.3 U	50		20	J	14		30	
	Enoch Valley Mine South Dump Seep	MDS026	0.39		2.5	9.3 U	53		0.66	0.78 UJ	0.60		10	
	Henry Mine South Pit Overburden Dump Seep (1997 #28)	MDS016	0.88		2.2	9.3 U	43		2.2	J	0.70		42	
	Henry Mine South Pit Overburden Dump Limestone Drain (formerly FD002) (1997 #29)	MDS022	0.41		4.1	9.3 U	45		4.0	J	0.24	0.50 U	52	
	Ballard Mine Pit #2 Upper Dump Seep	MDS030	0.18		3.4	9.3 U	42		0.33	0.78 UJ	2		15	
	Ballard Mine Pit #2 Lower Dump Seep South	MDS031	0.76		6.3	9.3 U	55		1.4	J	12		34	
	Ballard Mine Pit #2 Lower Dump Seep North	MDS032	0.20		3.3	9.3 U	48		0.10	0.78 UJ	11		29	
	Ballard Mine Goat Seep	MDS033	0.52		2.4	9.3 U	47		1.3	J	6.7		36	

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

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N/A - Not Applicable.

October 2004 Uncensored Validated Groundwater Data - Dissolved Metals (mg/L)														
Feature	**Station Name**	**Station**	**Selenium**	**Flag**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Nickel**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Agricultural Well	Godfrey Field Well North	MAW007	-0.00042	0.0010 U	0.000010	0.0025 U	0.00010	0.075 U	0.00070	0.065 U	-0.0015	0.000050 U	0.053	5.4 U
Monitoring Well	Ballard Pit East Well	MMW001[a]	0.017		0.0059		0.00047	0.075 U	0.056	0.065 U	0.011		0.56	5.4 U
	Ballard Pit West Well	MMW002[a]	0.024		0.00010	0.0025 U	0.00023	0.075 U	0.012	0.065 U	-0.0014	0.000050 U	0.25	5.4 U
	Henry North Pit Monitoring Well North	MMW004	0.00012	0.0010 U	0.000010	0.0025 U	0.00020	0.075 U	0.0014	0.065 U	0.00059		0.051	5.4 U
Production Well	Degerstrom Well at EVM	MPW020	-0.00036	0.0010 U	0.000050	0.0025 U	0.000060	0.075 U	0.013	0.065 U	-0.0031	0.000050 U	0.0050	5.4 U
	Henry South Pit Production Well	MPW022	0.000040	0.0010 U	0	0.0025 U	0.0012	0.075 U	0.0010	0.065 U	-0.0012	0.000050 U	0.10	5.4 U
	Henry Center Pit Dewatering Well	MPW023	-0.00022	0.0010 U	0.000060	0.0025 U	0.000040	0.075 U	0.016	0.065 U	-0.0032	0.000050 U	0.74	5.4 U

Notes:

[a] Average of the QA replicate samples reported.

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N/A - Not Applicable.

October 2004 Uncensored Validated Groundwater Data - Total Metals (mg/L)														
Feature	**Station Name**	**Station**	**Selenium**	**Flag**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Nickel**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Agricultural Well	Godfrey Field Well North	MAW007	-0.000080	0.0010 U	0.000090	0.00010 U	0.00070		0.0029		0.00090		0.087	

Notes:

[a] Average of the QA replicate samples reported.

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N/A - Not Applicable.

October 2004 Uncensored Validated Groundwater Data - Ions (mg/L)																
Feature	**Station Name**	**Station**	**Calcium**	**Flag**	**Chloride**	**Flag**	**Magnesium**	**Flag**	**Potassium**	**Flag**	**Sodium**	**Flag**	**Sulfate**	**Flag**	**Total Alkalinity**	**Flag**
Agricultural Well	Godfrey Field Well North	AW007	58		12		20		2.8	3.0 U	13	320 U	24		240	
Monitoring Well	Ballard Pit East Well	MW001	110		6.6		21		0.77	3.0 U	8.9	320 U	99		270	
	Ballard Pit West Well	MW002	69		12		36		1.4	3.0 U	8.5	320 U	49		310	
	Henry North Pit Monitoring Well North	MW004	70		64		37		1.6	3.0 U	8.6	320 U	140		130	
Production Well	Degerstrom Well at EVM	PW020	51		6.2		17		0.60	3.0 U	5.3	320 U	98		94	
	Henry South Pit Production Well	PW022	52		5.8		12		1.1	3.0 U	6.4	320 U	3.1	8U	200	
	Henry Center Pit Dewatering Well	PW023	63		6.6		24		0.80	3.0 U	9.3	320 U	70		190	

Notes:

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Uncensored Validated Monthly Vegetation Data (mg/kg dw)													
Station Name	**Station**	**MAY 2004**		**JUNE 2004**		**JULY 2004**		**AUGUST 2004**		**SEPTEMBER 2004**		**OCTOBER 2004**	
		Selenium	**Flag**	**Selenium**	**Flag**	**Selenium**	**Flag**	**Selenium**	**Flag**	**Selenium**	**Flag**	**Selenium**	**Flag**
Blackfoot River below Trail Creek	MST021	0.32	0.50 U	-0.13	0.50 UJ	-0.14	0.50 U	0.34	0.50 UJ	0	0.50 U	-0.35	0.50 UJ[a]
Blackfoot River below Angus Creek	MST027	0.24	0.50 U	0.064	0.50 UJ	-0.16	0.50 U[a]	0.12	0.50 UJ	-0.12	0.50 U	-0.35	0.50 UJ
Blackfoot River below Woodall Mountain Creek	MST231	0.10	0.50 U	-0.37	0.50 UJ	-0.16	0.50 U	0.19	0.50 UJ	-0.032	0.50 U	-0.31	0.50 UJ
Ballard Mine Pit #1 Overburden Dump #2	MWD081	0.013	0.50 U[a]	-0.048	0.50 UJ	-0.25	0.50 U	0.011	0.50 UJ	-0.42	0.50 U	-0.080	0.50 UJ
Henry Mine Center Waste Dump	MWD086	3.5		6.6	J	7.5		5.4	J[a]	1.0		0.80	J
Enoch Valley Mine Waste Dump	MWD091	25		10	J	1.3		8.1	J	0.80		3.1	J

Notes:

[a] Average of the QA replicate samples reported.

[b] Flags are not applicable, no data validation required.

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